YOUR GUIDE TO CLEAR FINISHES: See our chart Page 74

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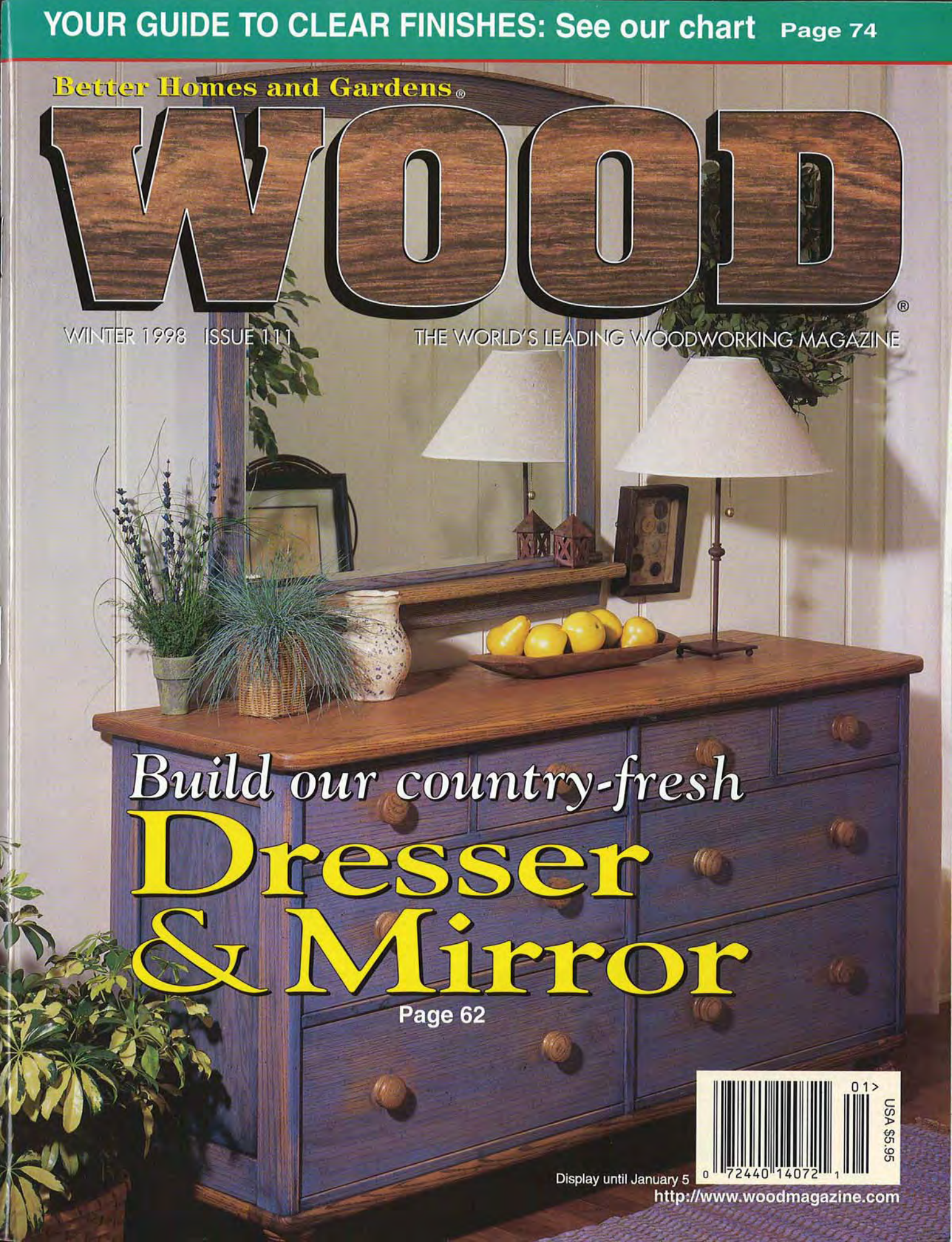
WOOD®

WINTER 1998 ISSUE 111

THE WORLD'S LEADING WOODWORKING MAGAZINE



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Page 62

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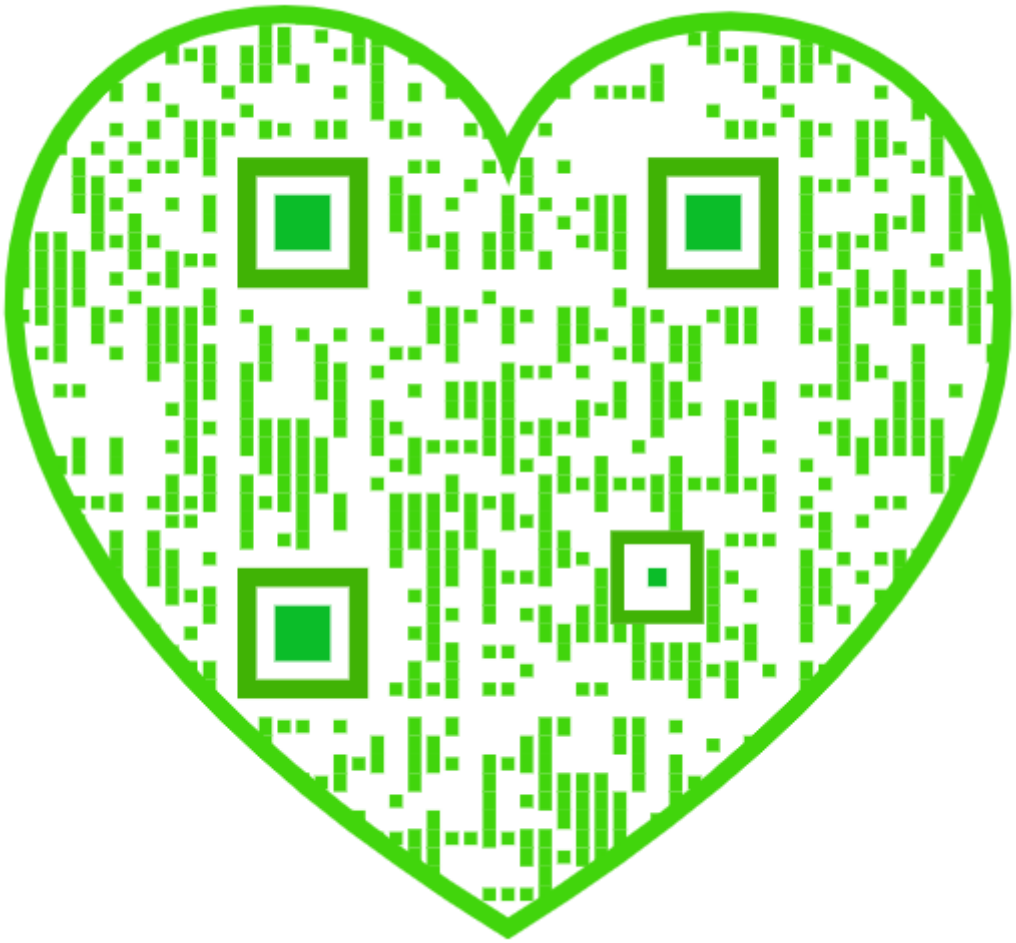

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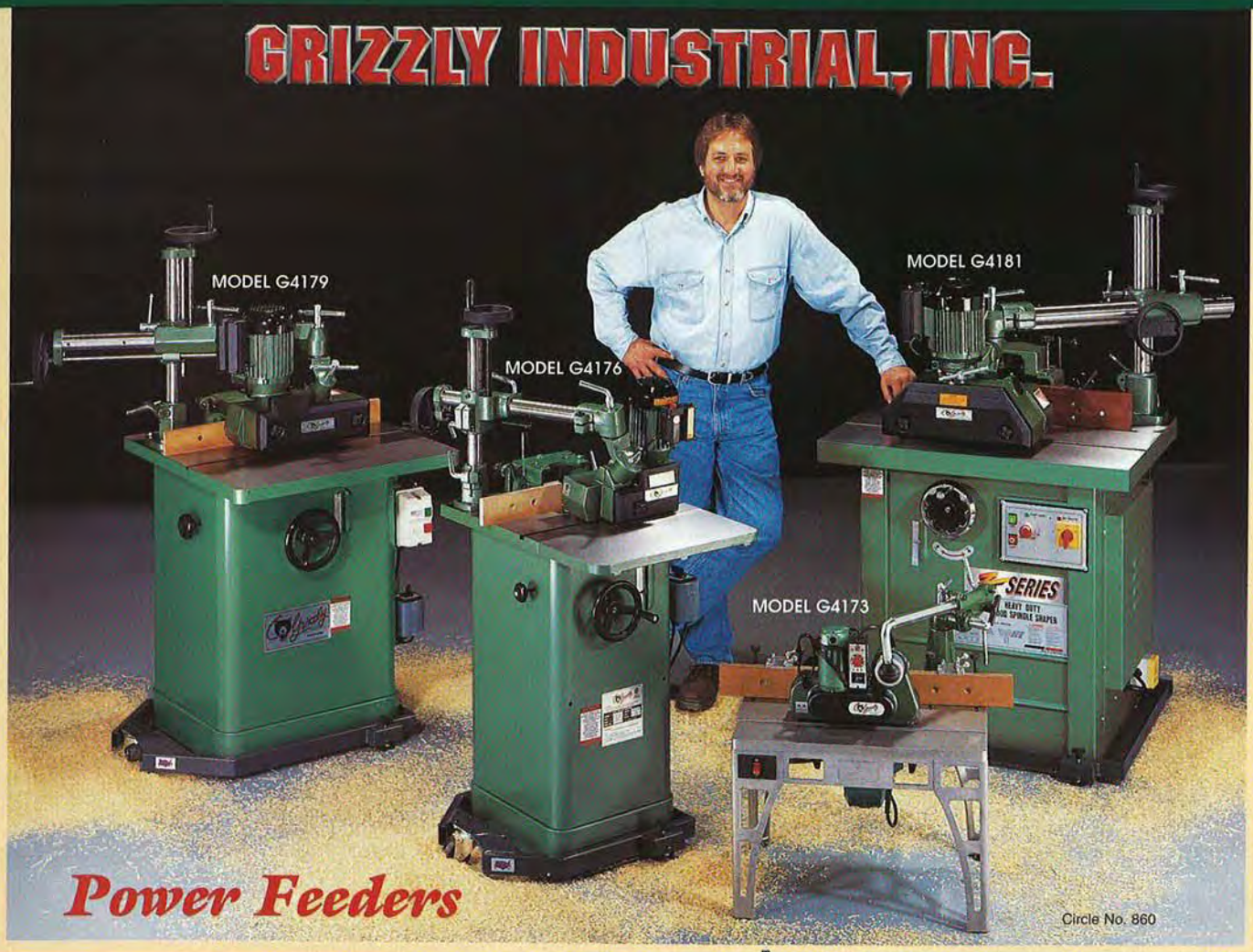

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ISSUE NO. 111 WINTER 1998
This issue's cover wood grain: Indian rosewood

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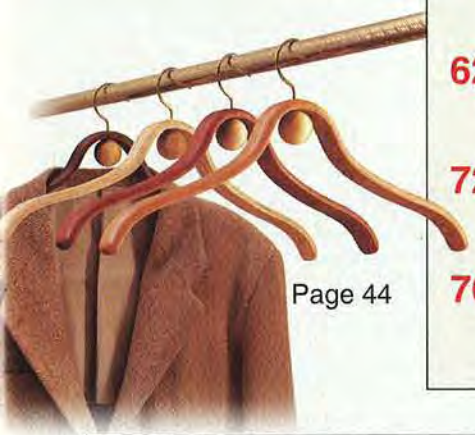
THE WORLD'S LEADING WOODWORKING MAGAZINE

Page 35

Page 39



Page 44

CONTENTS

35 Fill 'er up for perfection
Learn to fill wood grain before finishing to achieve a glasslike appearance every time.

39 Basketmaking in 10 easy steps
You have the tools to make baskets; now order the materials and let's get weaving.

50 Furniture carving for noncarvers
See how we use a rotary carver and special cutters to dress up an oak mirror frame.

56 Blades and bits in the making
Travel with us to Italy to see how CMT and Freud manufacture router bits and saw blades.

74 At-a-glance guide to clear finishes
Rely on this quick reference to determine what finish to use on your next project.

Woodworking projects

44 Bent-laminated hang-ups
Glue and clamp wood strips over templates to make showy clothes hangers and hooks.

54 Art deco-style photo frame
Give a pretty face a handsome place with this easy-to-make desktop design.

62 Country-fresh dresser and mirror
Beautify a bedroom with our complementary project pair that are part of a complete set.

72 That old oaken clock
Scrollsaw and apply a decorative clock face border that features leaves and acorns.

76 Step right up
Try out our box-joint jig while building one or both of the sturdy step stools shown here.

Page 56

Page 62

Page 76

SHORT-SUBJECT FEATURES

2 The Editor's Angle
4 Talking Back
10 How To Work With Figured Woods
14 Will Selling Your Work Ruin A Fun Hobby?
18 The Furniture Repair Shop
20 Great Ideas: Spray-Adhesive Drawer
24 Tips From Your Shop (And Ours)
86 Products That Perform
102 Wood Anecdote: Sycamore
104 Finishing Touches

A Clever Spin On My Woodworking-Scrapbook Idea

I just love it when something I write for *WOOD* magazine serves as an idea starter for you readers. In fact, that's what it's all about for all of the *WOOD* magazine gang. It seems like no matter what kind of idea we come up with, one of you suggests something that makes it even better. That's terrific!

A few days ago I was rummaging through my in-box and happened onto a letter I got from Bob Vincent, a first-year woodworker from Pawtucket, Rhode Island. And a beauty it was!

This enterprising woodworker not only had read my editor's column in issue 103 suggesting that readers record their woodworking heroics by taking photographs of their projects, he went the extra mile. The result: a 6-page newsletter titled "Sawdust and Splinters (the first page is shown *above*). Bob says it's a great way to keep his family and friends current on what he's up to in the shop

Sawdust And Splinters

Volume 1 Issue 1

March 1998

Time to look back on our first year in woodworking

It's been a good first year as far as woodworking goes - I've managed to get all the splinters out of my hands (or at least I think I have!) and in spite of all the mistakes that go along with learning something new, we've managed to turn out a couple of nice things! Jeanne has been a blessing - she patiently waits as I spend endless hours out in the workshop, then pitches in on the finishing end of the projects. Stain, poly, paint, she does them all. This newsletter will walk through some of the better things we've done, and speak to the projects in some detail. If all that sounds boring, well, just look at the pictures! (Sorry, no centerfolds!)

Here's the place where it all happens - it may not be Norm's workshop, but it's not too shabby in it's own right!

A bin in the front hallway is a small footwork shelf I scrolled quite a while ago, when I first got my scrollsaw. Jeanne finished it the same as the switchplate below.

Measure at LEAST twice before you start cutting - it's easy to make it shorter, but how do you make it longer?

Here in the front hallway sits the newest piece - a corner table made of red oak (from the Bob Cordon lumber archives), and finished with Minwax Tung Oil (first time I've used this stuff, and I liked it). We haven't quite finished decorating it yet, but the lamp on it sets it off nicely for now.

Detail of the cove on the laminated edge of the table.

Jeanne gets her new living room..and we build parts of it!

Jeanne got her new furniture this February, just after her 29th Birthday. A new loveseat, chair and ottoman, and a great new recliner for me, with the heat and massage built in. (If I can get done out in the workshop, I might be able to sit for a bit and enjoy it!) Of course, where there are new chairs, there have to be new tables. And new lamps. And since Jeanne only found one pair of lamps she liked (at ninety bucks a pop), it was up to us to design and build our own lamps and tables to go with the new furniture.

The new lamp sitting atop the new endtable. The door of the lamp opens to reveal storage inside, and even the shade was hand-made by Jeanne. She picked a card with a picture she liked, which we scanned into the computer, printed to fit, and she then decoupaged it onto the lamp door, blending it out with matching paints. The aprons of the table are scrolled, then joined to the tapered legs. The table top is actually 3/4" oak plywood with a 1 1/2" band of pine around it. The corners were mitered, then rounded off before sanding smooth. The top is finished with a dark Teak stain, and the bases painted with a rich shade of blue, matching the body of the lamp. Beneath this table is a coin bank we made to save for our planned trip to Disney with Bret in the year 2000.

The first page of Bob Vincent's well-done woodworking newsletter

I really enjoyed reading about your exploits, Bob, and I'm hoping a lot of our readers will follow your excellent lead. Thanks for sharing your idea.

To find out how Bob molded his computer, woodworking, and photography skills into a super-impressive newsletter, send a self-addressed stamped envelope to *WOOD* magazine, Woodworking Newsletter, 1716 Locust Street, GA310, Des Moines, IA 50309-3023. We'll send you Bob's instructions for how to create your own.

Larry Clayton

Here's newsletter creator and first-year woodworker Bob Vincent relaxing in his Pawtucket, Rhode Island, workshop.

Photograph: Jeanne Vincent

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Wood Profiles, a popular section from the latest *WOOD SHOW ONLINE*, has moved to a permanent home at *WOOD ONLINE*. Adapted from the well-liked Wood Profile features in *WOOD* magazine, each online article focuses on a single woodworking wood. Each Wood Profile describes a species, tells a bit about its history in woodworking, and discusses its uses and availability. In addition, you'll find tips and techniques aimed at helping you work successfully with the particular stock, along with some handy general woodworking tips.

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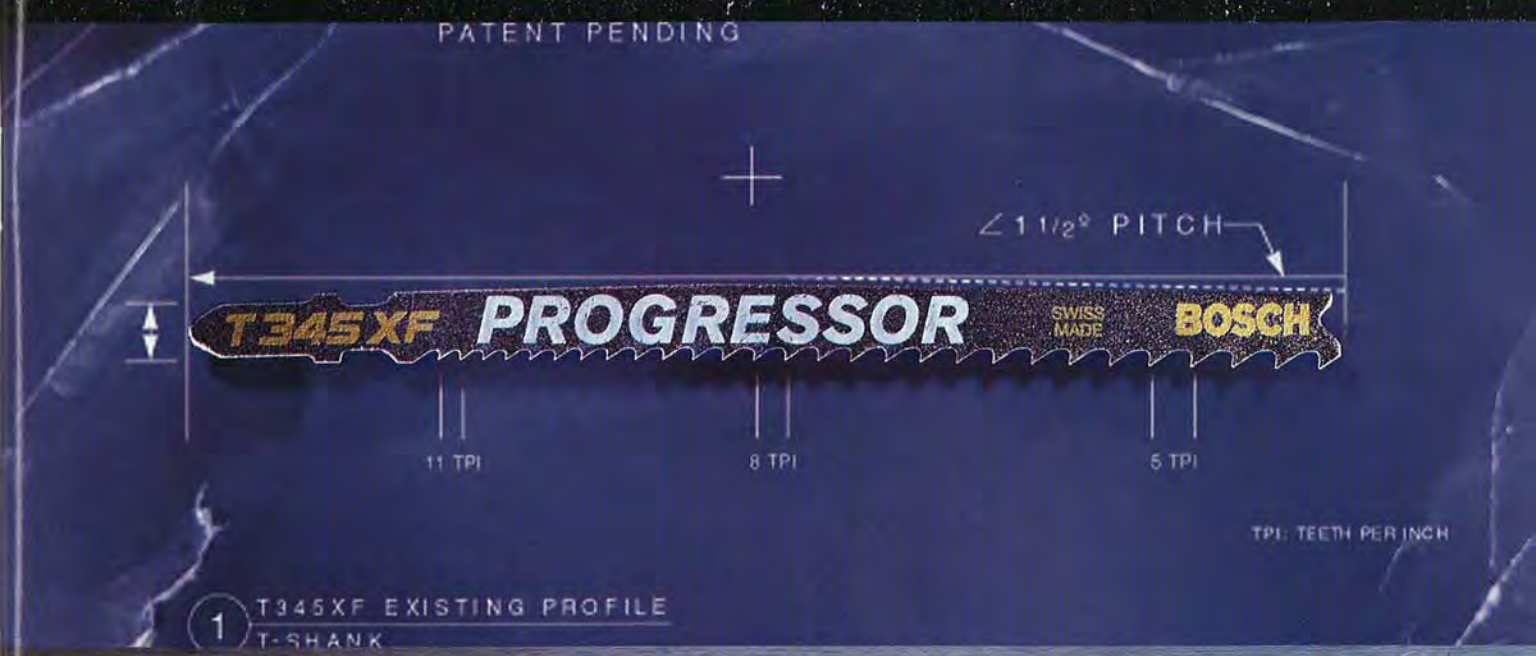

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TALKING BACK

Wanted: Internet woodworkers

Your WOOD SHOW ONLINE® is absolutely great. I'm very impressed by your achievements to combine your publication and instruction with new technologies. I sincerely hope there will be many WOOD SHOWS ONLINE to come.

The company that I work for has developed a system for education over the internet. It's called the LearningWeb. The LearningWeb delivers cost-effective training at the user's convenience. There's no mail to wait on. Simply log on and continue with your courses at your own pace and schedule. The LearningWeb also provides testing, certification, and security for teachers and their materials.

Currently the system includes hundreds of courses with varying content from algebra and computer programming to buying a new car and coaching basketball. As of yet, there are no woodworking courses. I am confident that woodworking training can be delivered over the internet very effectively.

All we need are some instructors and students. If you would be interested in either, please check out our web site at: www.learning-web.com

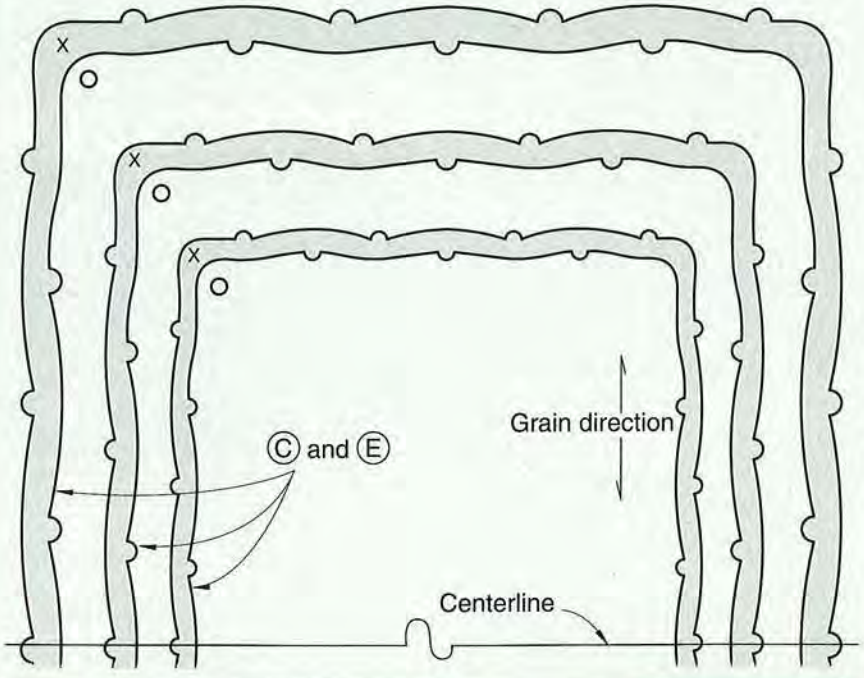
—Dan Siemer, Interchange Technologies and Learning

Scrollsaw basket pattern revised

I enjoyed the article on scrollsaw baskets in issue #107 of *WOOD* magazine. I did notice a small error that could lead to some problems.

In the full-size pattern for parts C and E, the centerline used to match up the halves of the pattern with parts B, D, and F isn't in the center. The line should be moved up about ⅛" so that it goes through the middle of the beads, as shown *below*.

—Bob Harker, Terre Haute, Ind.



Speak your mind

We welcome your comments, criticisms, suggestions, and yes, even compliments. We'll publish letters of the greatest benefit to our readers. Write to: Talking Back, *WOOD* Magazine, 1716 Locust St., GA310, Des Moines, IA 50309-3023.

Continued on page 8

imagine
the possibilities

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Photo: Pat Shanklin

Imagine the possibilities –

John McAlister Jr. did. John, a 73 year old North Carolina native, and self taught wood worker for the past 31 years, researched and built this Goddard-Townsend secretary.

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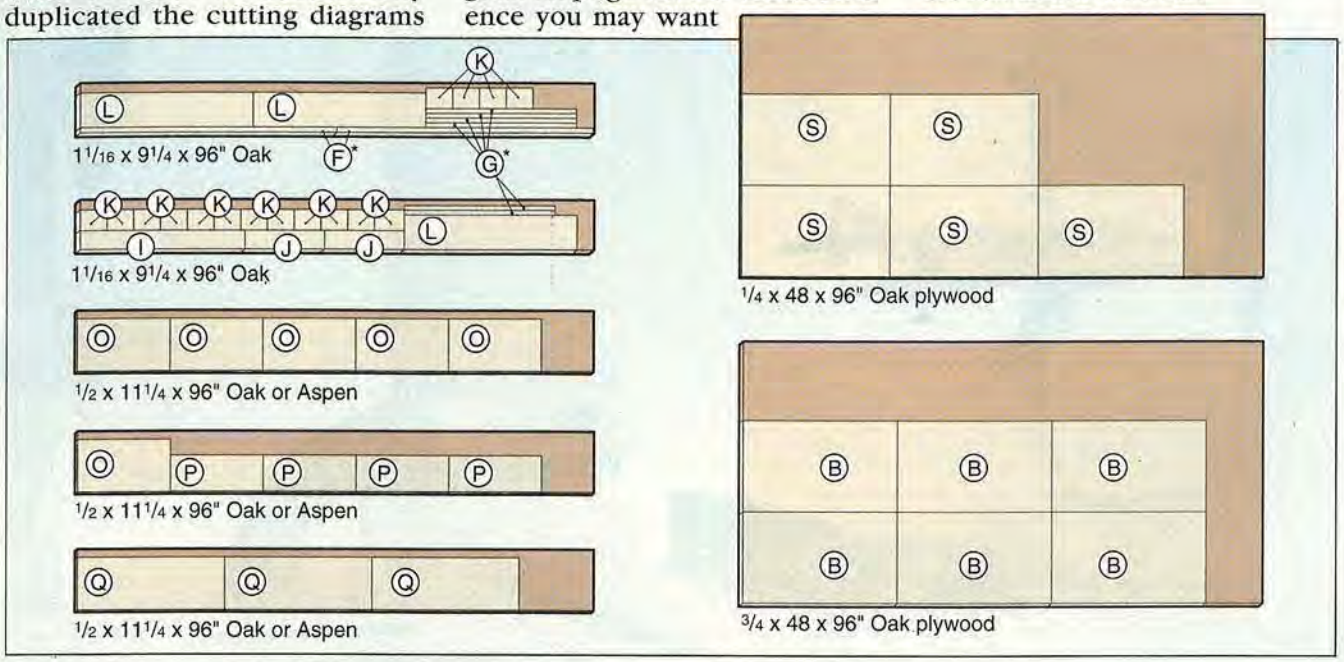
Continued from page 4

New cutting diagram for the five-drawer chest

You may have noticed in the five-drawer chest project featured in issue 110 that we accidentally duplicated the cutting diagrams on *pages 68 and 69*. Shown *below* is the correct cutting diagram for *page 69*. For future reference you may want to clip and paste this diagram over the one on *page 69*. We apologize for this inconvenience .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1 1/16 x 9 1/4 x 96" Oak
F*
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J
L
1 1/16 x 9 1/4 x 96" Oak
O O O O O
1/2 x 11 1/4 x 96" Oak or Aspen
O P P P P
1/2 x 11 1/4 x 96" Oak or Aspen
Q Q Q
1/2 x 11 1/4 x 96" Oak or Aspen
S S
S S S
1/4 x 48 x 96" Oak plywood
B B B
B B B
3/4 x 48 x 96" Oak plywood

Is your shop covered?

Your December issue had an article about turning your woodworking hobby into a business. The article left out one very important subject: insurance.

Most homeowners policies include coverage for your personal contents, which would include tools. Problems begin when you use your tools for a business. All homeowners policies limit the coverage for "business use" items, usually to only $2,500 on premises and $250 away from your home. The homeowners policy also excludes product-liability coverage for anything that you sell.

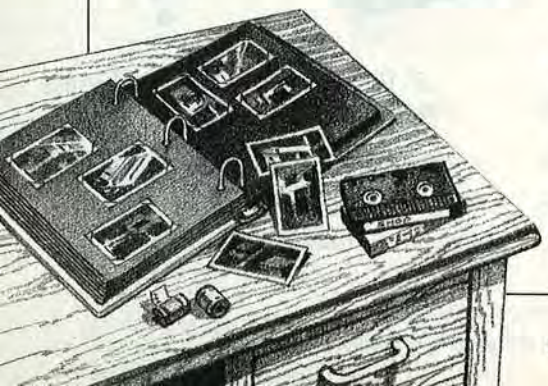
Many people think that because they don't make a profit, or that they do it "on the side," that they don't have a business. The policy defines a business very liberally, and doesn't limit it to one that makes a profit or is the primary occupation. If a friend asks you to make him a table and pays you $100 to help cover the cost, I don't think that you are yet a business. But, if you sell a bunch of tables at a craft show, I think you are.

Homeowners policies also include coverage for detached structures, like garages and workshops. The coverage is usually limited to 10% of your home's coverage. For example, if you insure your home for $250,000, they would automatically include $25,000 for detached structures. However, the policy excludes this coverage for other buildings if they are used for business activity. I highly recommend that woodworkers who sell their products consult with an insurance agent to make sure they are covered.

Fortunately there are fairly inexpensive ways to get coverage for your business. Many companies offer Home Enterprise Policies for people working out of their homes. These policies usually have a premium of $200–$300 a year, but some won't write a woodworker onto this type of policy. Many companies also offer Business Owner's Policies that start at about $350 a year. This policy would cover your tools, shop, equipment, and product liability.

Keep in mind that all policies still require that you prove your loss. If your router is stolen, the claims adjuster needs to know that you actually owned the router. They do understand that we don't always have receipts for all that we own, so they will usually accept owner's manuals, returned checks, credit card statements, photos, or videos. I recommend taking a video of your shop. While taping, comment on when and where you purchased certain items, and what their value is. Reshoot the video once a year, and keep it and all owner manuals in a safe deposit box.

—Willy Hoffman Jr., Certified Insurance Counselor, Washington, D.C.



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For great-looking projects
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Figured stock brings eye appeal to projects. Green dye stain (water-based aniline dye, in this case) accentuates the curly maple figure in the jewelry box.

Figured wood gives your projects pizzazz. These tips will help you work successfully with this sometimes uncooperative material.

Figured stock brings excitement to woodworking in more ways than one. Wood figure, such as the dramatic, glowing waves of curly maple on the green jewelry box *above* and the striking beauty spots of bird's-eye maple in the sides of the picture frame and the car's body, can turn a project from ho-hum to hoorah.

But this visual excitement comes at a price—the sometimes hair-raising experience of working with unruly material.

Figure on some workshop challenges with this stock

The very thing that gives figured wood its beauty—grain that twists and turns its way through a board—makes it demanding to work with.

One of woodworking's basic rules—go with the grain—still applies when jointing or planing figured stock. But it becomes more difficult to follow with figured stock.

Checking grain lines on the edge of a figured board may or may not help you determine grain direction. On this piece of curly maple, the grain seems to run in one direction at the pen point, another direction behind it.

In the curly maple board *below center*, for instance, the grain in the vicinity of the pen point appears to run to the left. Under the ferrule on the pen, however, a fold in the grain lines seems to indicate the opposite grain direction—at least for a short distance.

When surface-planing or jointing figured stock, make your best determination of grain direction. Then, adjust your machine to take a light cut—maybe 1/32" or even 1/64". (Needless to say, the knives must be sharp.) Feed the stock steadily at a moderate speed, then check the results.

If you see a lot of chip-out and torn grain, as in the pieces of stock *below*, try running the material through the machine in the other direction. A lighter cut might help, too. For final machining, choose the feed direction and depth of cut that gives the cleanest results, and mark your stock so you'll always feed it through the same way.

You'll usually encounter edge chipping and surface tear-out when machining figured stock. You can minimize these woes, but not eliminate them entirely.

Sanding figured stock to thickness rather than running it through a surface planer often

Continued on page 12

GET MORE

Detail sander, power scraper and oscillating saw all in one tool.

GET MORE

The new MultiMaster is three tools in one: detail sander, scraper and flush-cut saw.

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The MultiMaster's patented oscillating motion and special triangle sanding pad permit aggressive sanding along delicate edges and in tight corners.

Flush Cut Saw Blade

Smoothly undercuts door jambs for floor coverings. Plunge cuts into wall board. Cuts wood, plaster and PVC. But because it oscillates, it won't cut you.

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The Fein MultiMaster is a true multi-purpose tool that saves hours of time. With the MultiMaster, finishing is just the beginning.

Finishing is just the beginning.

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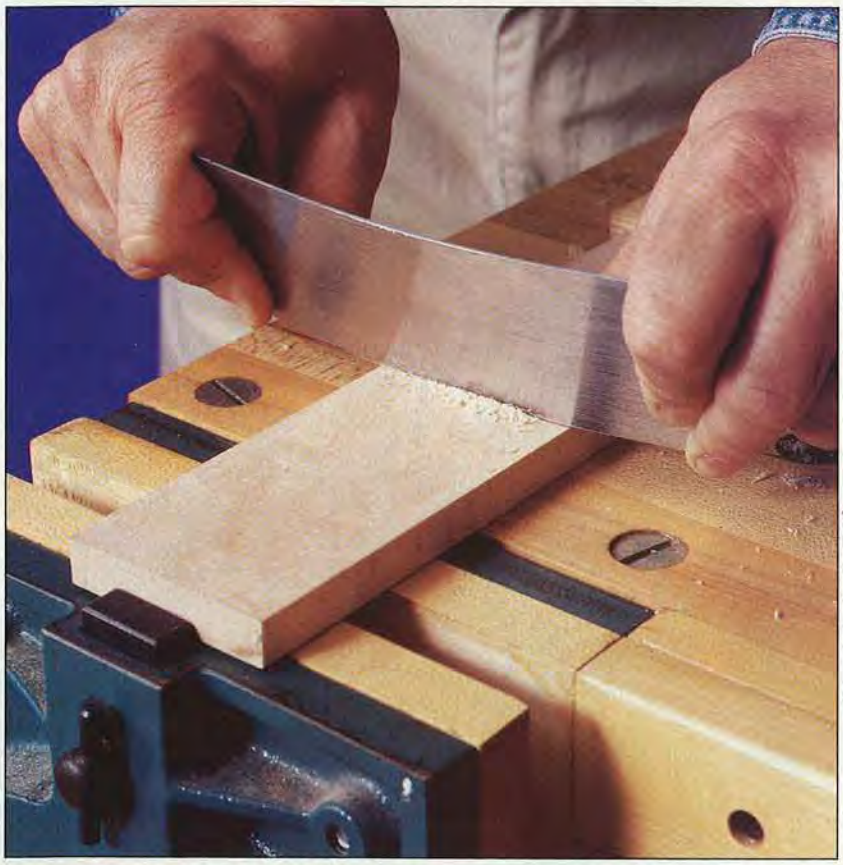
*Participating Fein dealers only

Kitchen design: Lee Wanasalja, CKD, Kitchens by Design, Plainview, NY/Photo: Carol Bates

Continued from page 10

A hand plane (here, a block plane) with a low-angle iron makes clean cuts in figured stock. Adjust the iron and plane mouth for a whisker-thin shaving.



A hand scraper quickly and effectively cleans up sanding scratches, machining marks, and surface flaws on figured stock. Use it just before finishing.

proves most effective. Drum surface sanders handle irregular grain with greater aplomb than thickness planers.

The ornery grain of figured wood can make sawing troublesome, too. You'll make your best cuts on figured stock by installing a zero-clearance insert in your tablesaw's throat. And when crosscutting, back the stock with scrapwood to prevent chip-out on the exit side of the cut. You'll want a sharp blade here, too.

A good approach to machining parts from highly figured stock is to cut all parts slightly oversize, then sand or plane them to finished size. A low-angle block plane like the one shown *left* does a great job of planing figured wood.

Keep the figure in sight when finishing your wood

Sand figured wood to about 180 grit. Sanding to finer grits won't bring out the figure any better, and may actually lessen its impact.

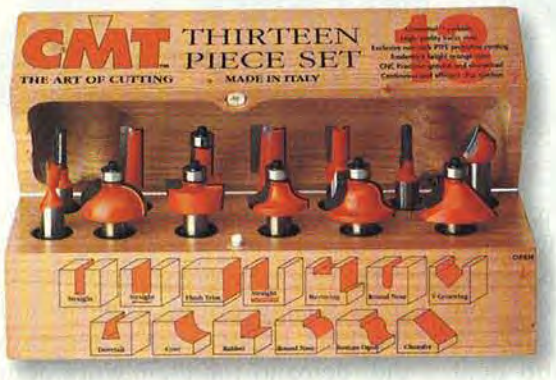
Here's a method that produces a beautiful figured surface. First, sand to 120 grit. Then, instead of further sanding, clean up the surface with a cabinet scraper as shown *left*. The scraper's edge, when properly dressed, shaves the wood down to a smooth, glassy surface without tear-out. (We follow this procedure on figured wood and burls in the *WOOD*® magazine shop.)

When you must stain figured wood, rely on dye stains. While pigment stains can highlight figure, they also can obscure it if applied too thickly. Dye stains accentuate the figure more effectively than pigmented stains, no matter how dark the stain color. Gel stains usually mask the figure.

A clear, film-forming finish, such as varnish or lacquer, enhances the depth of a figured surface. This can give it a more dramatic appearance.

Written by Larry Johnston with Chuck Hedlund Photographs: Hetherington Photography

CMT™ A perfect SET UP



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The CMT Rabbeting Set includes a 1-3/8" diameter micrograin carbide tipped rabbeting bit and 6 interchangeable bearings (hex key and screw included) to let you flush trim and make 6 different rabbet depths ranging from 1/8" to 1/2".

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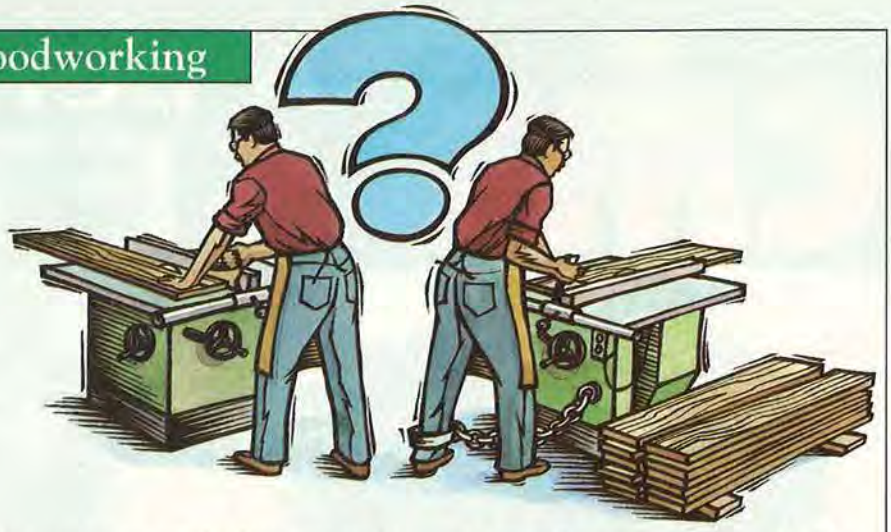
Will Selling Your Work Ruin a Fun Hobby?



When something you've loved to do all your life, such as woodworking, starts turning into a business, it can be great—or quickly become a problem.

Going to your workshop to relax after a hard week on the job (or to stay productive in retirement) is a far cry from dragging yourself there to fill an overdue contract or satisfy a mean-spirited customer. It's actually the difference between pleasure and drudgery.

Selling your work doesn't have to wreck your hobby or retirement, though. With the right attitude and guiding strategies, you can combine a rewarding pastime with a nice income.

Decide what you want your woodworking to do

To keep woodworking an enjoyable pastime and make some money with it, set a goal before you sell your work. Decide whether you'll sell your projects to (a) help pay for your hobby, (b) provide extra cash for vacations, etc., or (c) support your family.

Arriving at a goal decision is more than a glance-at-the-ceiling exercise. The Internal Revenue Service may someday want to know why you're doing what you're doing in order to determine whether it has hobby or business status for tax purposes.

If you're counting on woodworking to provide a full-time income, you might have to sacrifice some of your woodworking enjoyment—at least temporarily. You'll have to make pieces you don't enjoy so much, work longer hours than you want, and deal with difficult customers.

It's a different matter if you just want some cash to upgrade your tools or pay for an extra-special trip. Then, you can afford to be choosier about your products and your customers.

Either way, if you do quality work, the positive word-of-mouth advertising generated by sales will someday force you into a problem—more work than you can handle. How you deal with that also affects how much you'll continue to enjoy woodworking.

Raise prices to keep growth manageable

A backlog of a month or two is manageable for most woodworkers. Once the backlog grows beyond that, however, you're doing both yourself and your customers a disservice.

To keep your woodworking load manageable, raise prices. But some woodworkers have trouble with this, especially in the first few years of selling work.

Unfortunately, many woodworkers sell their work at close to cost, which makes little sense. Woodworkers are some of the nicest and humblest people around. That's why they often shy away from setting prices others may feel are extravagant. You shouldn't worry about that.

There's one possible backlash from raising prices. Some woodworkers report that when they did, demand for their work actually rose. Customers who before didn't think they did quality work suddenly see them in a new light.

That's a problem you can profit from. Just raise prices again until your workload jibes with your comfort level.

Other options to control your workload

It could be you're making small-ticket items that just won't bear a price increase. Then, think about moving into a new, more profitable niche. Generally, you'll make the best money on items that are the most unusual, creative, or customized. And you probably won't have to make as many of them.

Other solutions to keep your enjoyment high and still handle a growing workload are to hire an employee or contract out the time-consuming work, such as sanding or finishing. These options, though, are the most dramatic and complex ones you can take. They inevitably make you more of a manager and less of a woodworker. That's also the point at which your hobby really becomes a business, and it's a step you should take only if you're committed to making woodworking your livlihood.

Written by Jack Neff, a Batavia, Ohio, business writer and author of *How to Make Your Woodworking Pay for Itself* Illustration: Brian Jensen

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The Grand Edition 14" Band Saw is one grand value. Rides around the shop on a mobile base and sports an 18" rip fence and Cool Blocks™. More than $225 in extras. Then top it off with a **$50 rebate.**

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Woodworker's Journal, January/February 1998

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Better Homes & Gardens® Wood,® November 1996

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American Woodworker,™ December 1996

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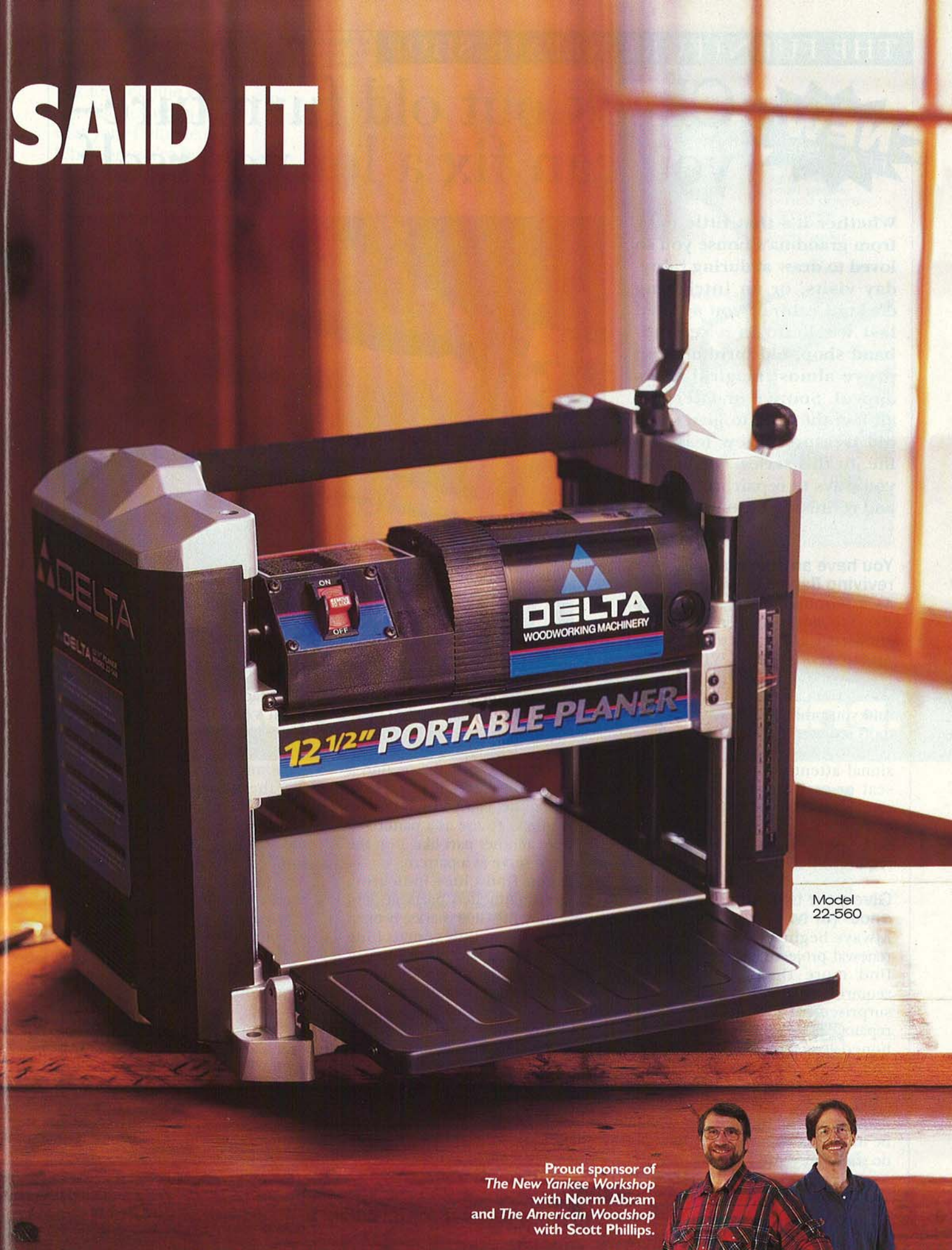

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22-560

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NEW FEATURE

Check out old furniture—you can fix a lot yourself

Whether it's that little desk from grandma's house you so loved to draw at during rainy-day visits, or an intriguing cocktail cabinet you spotted last weekend in a second-hand shop, old furniture can prove almost magical in its appeal. Sooner or later, we all feel the urge to give some old treasure a new lease on life. In this series, we'll show you ways to repair, refurbish, and refinish furniture.

Gluing loose joints was all it took to put this needlepoint footstool back in service.

You have an advantage in reviving flawed furniture

As a woodworker, you're way ahead of most people in having the knowledge and ability to tackle furniture renovation. With basic woodworking skills and common sense, you can make many repairs. And you probably already have the tools required.

Some tasks will call for professional attention—upholstering a seat or resilvering a mirror, for example. But you may find that you can perform partial repairs yourself, then farm out the jobs that require a specialist.

Give your treasure a good once- (or twice-) over

Always begin by assessing your renewal project. Sometimes, you'll find more than one problem requiring repair. But you may be surprised by how many of those repairs call for skills you've already honed in project building—cutting, fitting, aligning, gluing, sanding, finishing, and such.

Take into account what you'll be doing with the furniture. If it will be in regular use, you may have to do some preventive repairs, too.

Some questions to ask yourself as you inspect the item

- Are any parts missing? If so, is there another one like it on the piece that you can use as a pattern to make a replacement?
- Are any parts broken? If so, can the broken part be repaired, or will you have to make or find a replacement piece? If you'll have to make one, can you salvage the broken part to use as a pattern or is there another part like it on the piece to serve as a pattern?
- Can you find clues indicating where unattached parts go and how they fit? Glue marks, broken wood, screw holes, matching parts still attached elsewhere, or your knowledge of woodworking techniques can point the way.
- Is the hardware all there? If not, how easily will you be able to replace the missing items?
- What's the finish on the piece, and what condition is it in? If it's veneered, is any of the veneer lifted or missing?
- Are there things you just don't understand about how the piece goes together or what some of the parts are for? If so, consult a furniture-repair professional.
- Are repairs required that you aren't able to make? Damaged carvings, for instance, would fall into this category if you aren't a woodcarver. Again, answering yes means it's time to talk to a repair or restoration pro.

Let us know what you want to know

We'll dig up a variety of furniture faults in this series and offer tips for fixing them. We'll also point out things you shouldn't do to old furniture—improper repair or refinishing often diminishes an antique's value.

But we want to hear your ideas, too. Drop us a line to suggest topics or furniture-repair problems you'd like to see discussed. Write to The Furniture Repair Shop, *WOOD*® magazine, 1716 Locust St., GA310, Des Moines, IA 50309-3023.

Photograph: Marty Baldwin

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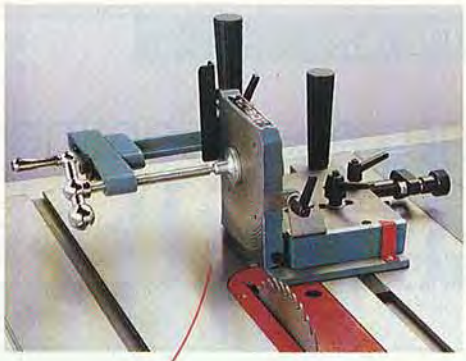
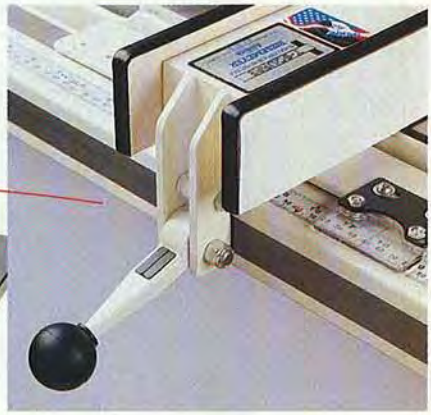
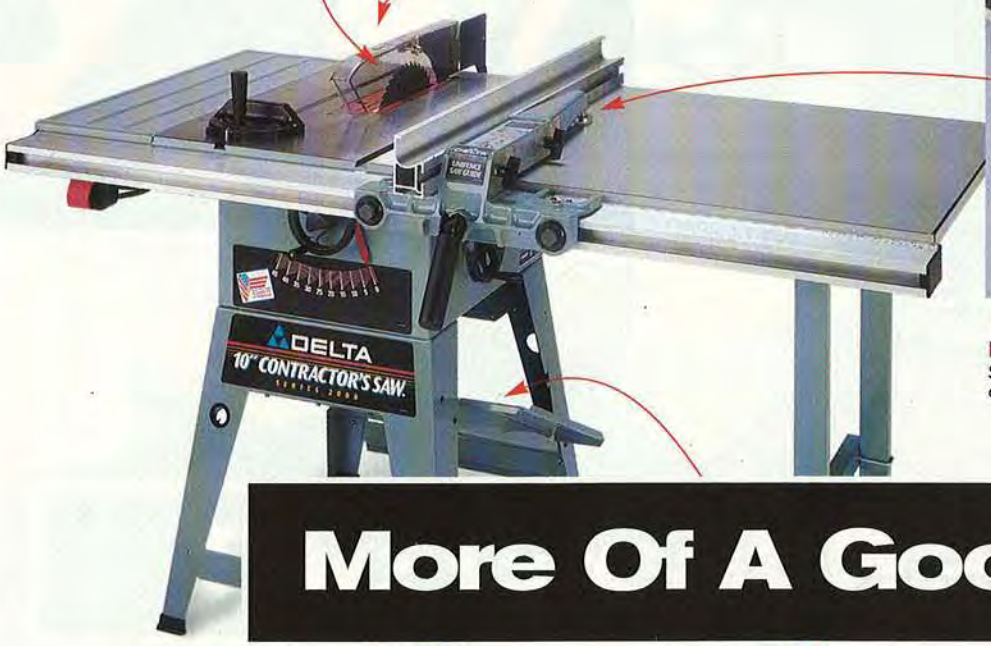


MORE VERSATILITY
Table top accessories such as a Delta tennoning jig or extra miter gages or hold downs can make your saw work harder.





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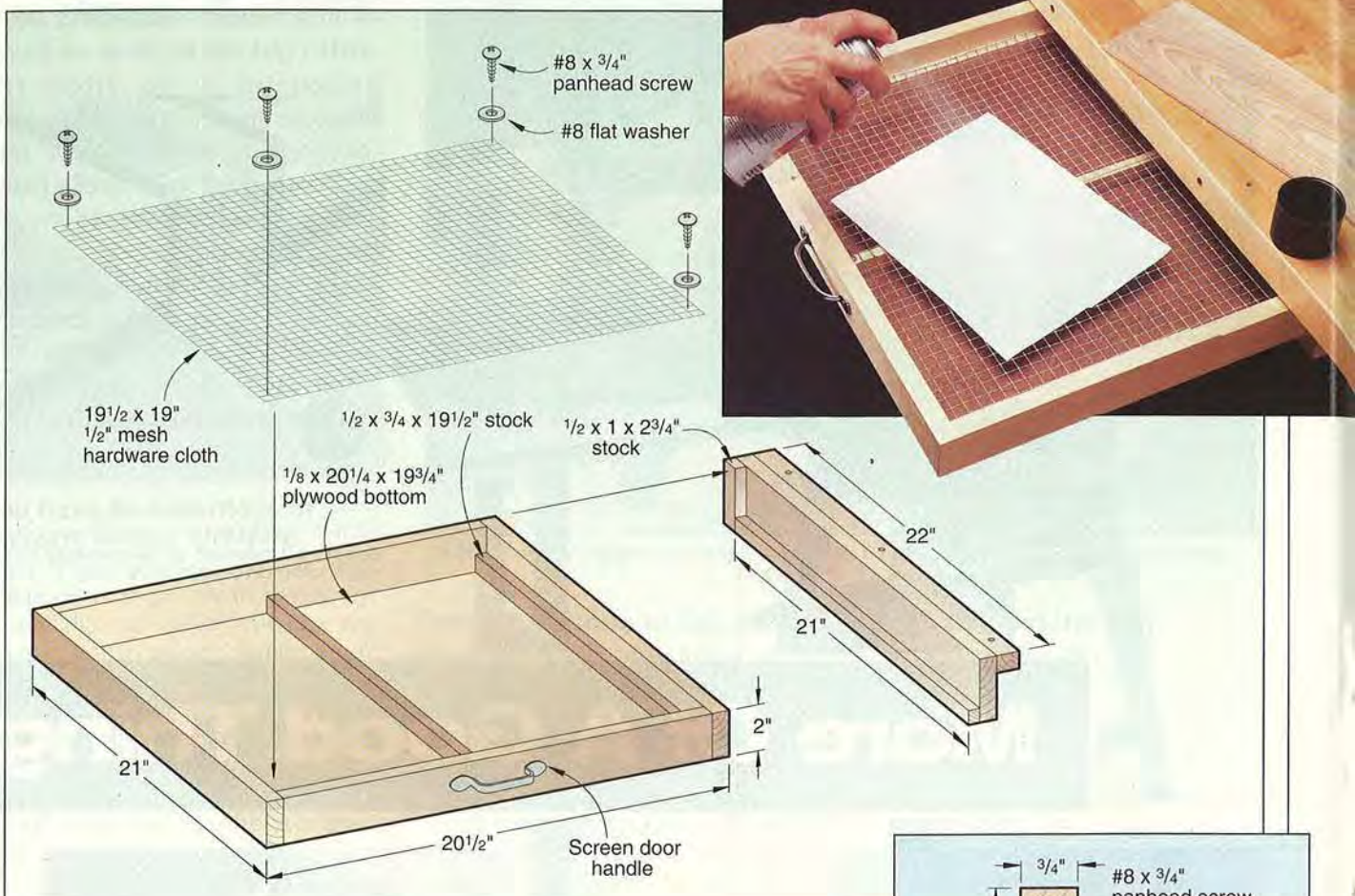
Keep the mess confined in our handy

Spray Adhesive Drawer


#8 x 3/4" panhead screw
#8 flat washer
19 1/2 x 19" 1/2" mesh hardware cloth
1/2 x 3/4 x 19 1/2" stock
1/2 x 1 x 2 3/4" stock
1/8 x 20 1/4 x 19 3/4" plywood bottom
22"
21"
2"
21"
20 1/2"
Screen door handle

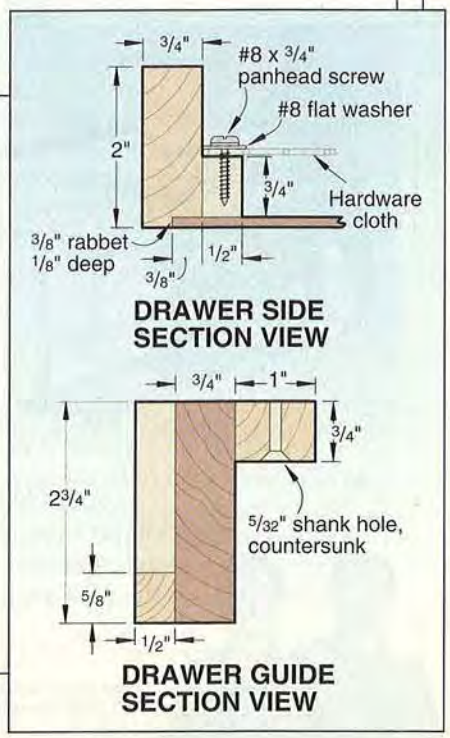
Spray adhesives work wonderfully for adhering scrollsaw patterns to a workpiece. But the inevitable glue overspray can leave a real mess on your benchtop. And if you spread out newspapers, you quickly find that the patterns stick to the newspaper as well as they do to your workpiece. This handy adhesive drawer makes the job slick, not sticky.

The hardware cloth, available from most home and garden centers, allows the glue overspray to pass harmlessly through to the drawer bottom. And your patterns won't stick to this mesh.

Build the drawer and guides as shown in the drawings. Attach the guides to the underside of your benchtop with #8×2" flathead wood screws.

If you have an apron beneath the top of your bench, you'll need to lower the drawer. Add the height of the apron to the height of the drawer guides. To keep the drawer from tipping as it opens, attach an additional ½×⅝" hardwood runner to each drawer guide 2¾" from the bottom of the guide.

Project Design: Rick Hutcheson
Illustrations: Roxanne LeMoine
Photograph: Baldwin Photography



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Includes Extra Knives & Dust Hood
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Includes extra knives
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C10FC	10" cmpnd mitre saw	199
M12V	3-1/4 hp vs pl. router	179
C10RA	10" table saw w/stand	299
P20SB	3-1/4" planer	89
NT65AA	16 ga finish nailer	349
NR83A	full head nailer	374
NR83AA	clipped head nailer	329
NV45AB	coil roofing nailer	379
EC12	2hp twin tk comp	269
CB75F	resaw/bandsaw	2399

BOSCH

1584AVSK VS Top Handle Jig Saw w/Case
$154

1584VSK	barrel jigsaw w/case	164
B3915	10"slide compound saw	499
3615K-GL	14.4 volt drill kit	179

1617EVS 2 HP VS Router
$179

11224VSR	7/8" Bldg sds r hmr	219
11304	Brute breaker hammer	1249
1194VSRK	1/2"vsr ham dr kit	159
1276DVS	4x24 vs belt sander	229
1274DVS	3x21 vs sndr w/bag	169
1618B	1-3/4hp D-hdl router	169

Panasonic

EY6100FQKW 12 V 3/8" Drill Kit w/2 Batteries
$174

EY6230FQKW	15.6v 1/2"drl kt	199

HONDA Power Equipment

EB2500XK1A 2500 Watt Construction Generator
$1029

EB3500XK1A	3500 w gen	1499
EB5000XK1A	5000 w gen	1879
EB6500SXA	6500 w gen	2479

EX1000A 1000 Watt Generator
$659

EM3500SXK1A	3500 elec strt	1629
EM5000SXK1A	5000 elec strt	1999
ES6500K1A	6500 electric strt	2679

For optimum safety & performance we recommend you read the owner's manual before operating your Honda Power Equipment. Connection of generators to house power requires transfer device to avoid possible injury to power company personnel. Consult a qualified electrician.

Emglo

AM78-HC4V 1-1/2 HP Vertical Twin Tank
$314

M79-HC4V	New 1-1/2hp vert	339

Milwaukee

6527-21 Variable Speed Super Sawzall
$169

5377-6	1/2"kylss hmmr drill kt	199
5371-6	1/2" hammer drill kit	189

6496-6K 10" Slide Compound Saw
Includes Tool Stand
$579

6497-6K	10" cmpd saw w/acc.	659
5397-6	3/8" hammer drill kit	144
0234-6	1/2"vsr 0-850 mag.	129
6368	7-14" saw w/ct bld, cs, fn	149

STANLEY BOSTITCH

N60FN-2 Kit 1-1/4" - 2-1/2" Finish Nailer
$279

N80S-1	16d stick nailer	319
N80C-1	New coil nailer	319
BT50-Kit	1-3/16"-2"brd nlr kit	169
532SX-Kit	finish stapler kit	139
RN45B-1	New roofing nailer	369
MIIIFS	floor stapler	549

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78-900 50" Commercial w/12" Left
$329

78-907	30" commercial fence	299
78-934	52" homeshop fence	279
78-931	40" homeshop fence	259
78-930	28" homeshop fence	249

SENCO

SFN40K 1-1/2 - 2-1/2 Finish Nailer
$319

SFN-1 Plus	1"-2" finish nailer	269
SLP-20	5/8"-1-5/8" brd nail kt	199
SLS20	finish stapler w/cs	239

Accuset by SENCO

A125BN 18 Gauge 1-1/4" Brad Nailer
$99

A200BN	18ga 2" brad nailer	134
A150LS1	1-1/2" finish stapler kit	144
A100LS	1" finish stapler kit	114
A250FN	15ga 2-1/2" fin nlr kit	239

Occidental Leather

5080 Pro Framer Tool Belt
$139

8080	oxy light pro framer	129

DELTA

36-800 3 HP White Unisaw w/50" Biesemeyer
$1599*

36-920	3hp wht uni w/unifnc	1599*
36-820	3hp unisw w/52" uni	1499*
36-820L	unisaw 3hp left tilt	1499*
36-821L	unisaw 3hp left tilt	1499*
36-830	3hp unisww/30"unif	1399*
36-821	3hp unisw w/50"Bies	1499*
36-831	3hp unisw w/26"Bies	1399*

36-455 10"Cont. Saw w/30" Unifence
$819*

36-460	10" cont saw 28" Bies	779*
36-470	10" cont saw 40" Bies	799*
36-480	10" cont saw 52" Bies	829*
36-444	10" contractor saw	599

28-270 14" 1 HP Bandsaw Includes Mobile Base, Fence, Cool Blocks
$799*

28-275	14" 3/4 hp bandsaw	549*
17-900	16-1/2"floor drill press	329
23-710	shaprening center	159
43-379	3hp hd 2 spd shaper	1349
36-220	10" cmpnd mitre saw	209
37-350A	8" long bed jointer	1399*

22-675Y 15" Planer w/Stand & Ext.
Includes Stand & Extensions
$1119*

37-190	6" jointer w/sand	399*
31-280	sanding center w/stnd	749*
40-650	18" vs scroll saw	399
50-840	1hp 650cfm collector	224
50-850	1-1/2hp 1200cfm clctr	299
50-851	2hp 1500cfm collector	499
50-853	3hp 2100cfm collector	699
50-860	New air cleaner	249

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333	5" Quicksand dstls sander	65
334	5" dustless PSA sander	65
97355	5" vs sander w/case	145
97366	6" vs sander w/case	149

DA250A 1"-2-1/2" Finish Nailer Kit
$209

CDA250	Bammer 15 ga fin nlr	279
CFN250	Bammer 16 ga fin nlr	279
CMS200	Bammer 16ga 2" stplr	279
FN250A	16g 2-1/2" fnsh nail kt	179
BN200	18g 2" finish nail kit	129
BN125	18g 1-1/4" finish nail kit	89
NS100	18g1/4" crown stplr kit	94
NS150	18ga 1-1/2"finish stplr	139
FC350	2 - 3-1/2" clip hd nailer	289
FR350	2 - 3-1/2" full hd nailer	289
RN175	coil roof nailer	279
CF2400	2 hp oil free comp	329

9352VS 3x21 VS Belt Sander
Includes Case
$184

7810	tool triggered vacuum	269
556	plate jointer w/cs & fnc	139
360VS	3x24 vs belt sander	224
362VS	4x24 vs belt sander	234
9862	12v 3/8" dr kit w/2 bat	159
9872	14.4v dr kit w/2 bat	184
743-K	7-1/4"15 amp saw w/cs	129

557 Plate Joiner With Case
$199

693PK	1-1/2hp plnge router kit	199
97310	lamintate trimmer kit	189
7539	3-1/4 hp 5 spd plng rtr	289
9690	1-1/2hp router w/cs	159
691	1-1/2 hp D handle router	169
697	router table w/router	234
7518	3-1/4 hp 5 speed router	289
7403	paint remover	189

9737P Quick Change Tiger Saw Kit
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7499	cut-out tool	69
9543	top hndl jigsaw w/case	164
7800P	drywall sander	339
6931	plunge router base	89

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DW744	10"portable table saw	499
DW733K	12-1/2" port plnr	399
DW788	20" vs scroll saw	399
DW938K	18V recip saw kit	269
DW937K	14.4v recip saw kit	249

DW995KS-2 18 Volt Contractors Combo Kit
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DW936K	18 v crdls saw kit	249
DW935K	14.4 cdls saw kit	229
DW621K	2hp vs plng router	199
DW625	3hp vs plunge router	289
DW673K	laminate trimmer kit	189

DW321KK VS Jigsaw With Case
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DW705	12" cmpnd mitr saw	349
DW364	7-1/4" saw w/brake	159
DW677K	3-1/8"planer w/case	154

DW682K Plate Jointer Kit
$159

DW421K	5"h&l rand sndr w/cs	74
DW423K5	"vs rndm snder w/cs	89
DW443	6" RA H&L rdm sndr	139
DW431	3"x21"vs belt sander	189

DW995K-2 18 Volt 1/2" 2 Batteries VSR Drill Kit
$259

DW991K-2K	14.4v3/8"dv/dr k	209
DW991KS-2	14.4v drill/saw kt	349
DW991KC-2	14.4 v dr/recip kt	379
DW995KC-2	18v dr/recip kt	399
DW997KC-2	18v hm dr/recp k	419

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2708-W 8-1/4" Tablesaw
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6233DWAE	14.4v drill w/2 bat.	174
5007NBK	7-1/4" saw w/case	129
3612C	3 hp plunge router	279

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LS1013	10" dual slide	499
LS1211	12" cmpnd miter saw	599
9820-2	blade sharpener	229
N1900B	3-1/4" planer w/case	139
3901	plate joiner	159

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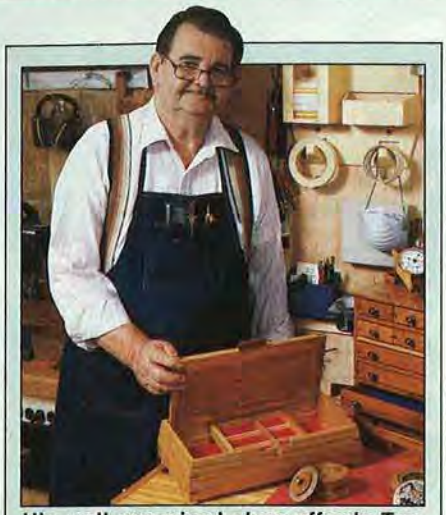


His well-organized shop affords Top Shop Tip winner Bill Wallis more time to build beautiful projects.

Bill Wallis has no problem deciding what projects to make; his problem was *finding* all of those projects in his back issues of *WOOD* magazine. He took care of that with this issue's Top Shop Tip at *right*.

Bill spends a lot of his time in his workshop, crafting jewelry boxes and keepsakes for his two daughters and their families. "I've built just about every jewelry box that's been in your magazine," he said.

Your solution to a woodworking problem may be worth $40. If we select your idea as our Top Shop Tip, you'll win a tool prize valued at more than $250. Plus, we'll include your photo in this column. To submit a tip, send a letter, including your daytime phone number, with a photo or drawing of your idea, to:

Tips from Your Shop (And Ours)
***WOOD* Magazine**
1716 Locust St., GA310
Des Moines, IA 50309-3023

We try to publish original shop tips, so please send your ideas only to *WOOD* magazine. And remember, we cannot return submissions. Thanks!

GENERAL-INTEREST EDITOR

A great way to organize *WOOD*® magazines

As an avid fan of *WOOD* magazine, I have saved all of my back copies for ready reference. However, it can become quite a chore to locate specific articles and projects, even with the help of your annual index.

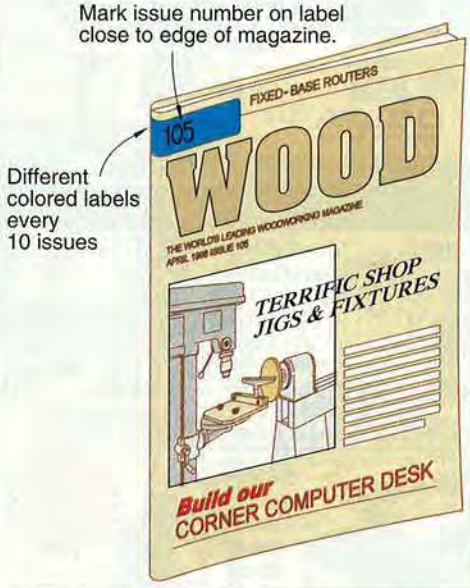
My new system has solved that problem. I wrapped colored, self-stick file folder labels around the bound edge of each magazine. I then divided my collection into groups of 10 issues per color. To keep it simple, I only use four colors of labels and then start the sequence over.

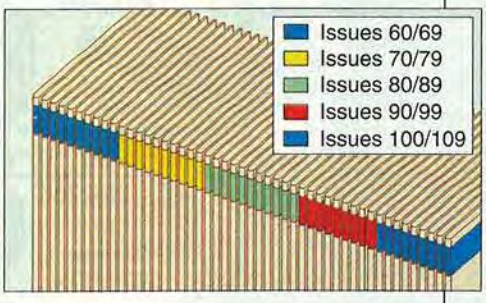
I write the issue number on the label and put two labels on each issue containing an index. This saves me from having to pull the magazine all the way out to find the number printed on the cover.

— Bill Wallis, Effingham, Ill.

TOP SHOP TIP

Bill Wallis receives a Bosch 3hp plunge router (model 1615) for sending us this issue's Top Shop Tip. Thanks, Bill!

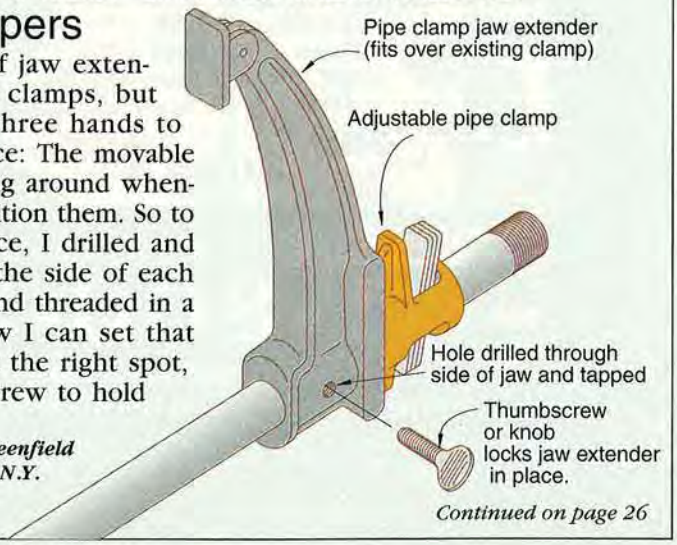

Mark issue number on label close to edge of magazine.
Different colored labels every 10 issues
105
FIXED-BASE ROUTERS
WOOD
TERRIFIC SHOP JIGS & FIXTURES
Build our CORNER COMPUTER DESK



It takes more than two hands to handle these whoppers

I bought a pair of jaw extenders for my pipe clamps, but found I needed three hands to keep them in place: The movable jaws kept swinging around whenever I tried to position them. So to keep them in place, I drilled and tapped a hole in the side of each sliding extender and threaded in a thumbscrew. Now I can set that extender at about the right spot, and tighten the screw to hold it in place.

— Tom West, Greenfield Center, N.Y.


Pipe clamp jaw extender (fits over existing clamp)
Adjustable pipe clamp
Hole drilled through side of jaw and tapped
Thumbscrew or knob locks jaw extender in place.

Continued on page 26

CAN YOUR TABLE SAW PASS THE NICKEL TEST?

Try it. See if a nickel will stand on your saw while it's running.*

Odds are it can't.

But on a RIDGID TS2424, the nickel won't budge. Because the vibration-absorbing cast iron construction, heavy-gauge steel stand and precision machined pulley/poly-v-belt drive system are engineered to deliver unmatched, smooth-running performance.

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The state-of-the-art front and rear locking, seamless extruded aluminum rip fence system for easy, secure set ups and accurate rips up to 24 inches right and left of the blade.

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RIDGID

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visit our website @ www.ridgidwoodworking.com or your nearest Home Depot store.
*Make sure guard is properly installed.

Continued from page 24

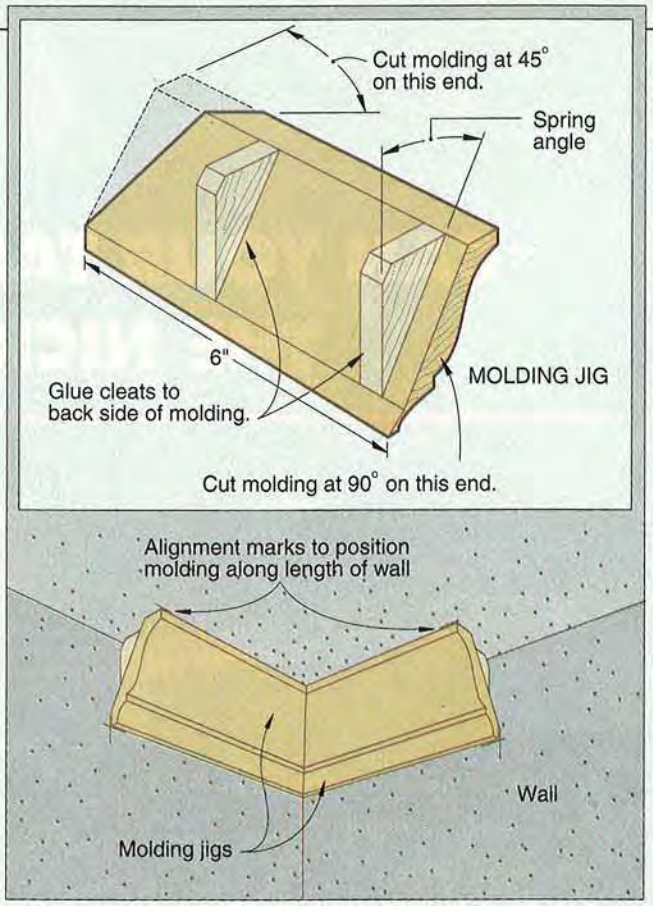
Conquer the ruler and become the king of crown molding

When installing crown molding, I find it difficult to measure accurately between the corners of a room. A tape measure can't measure precisely enough into corners for me to cut nice, tight miter joints.

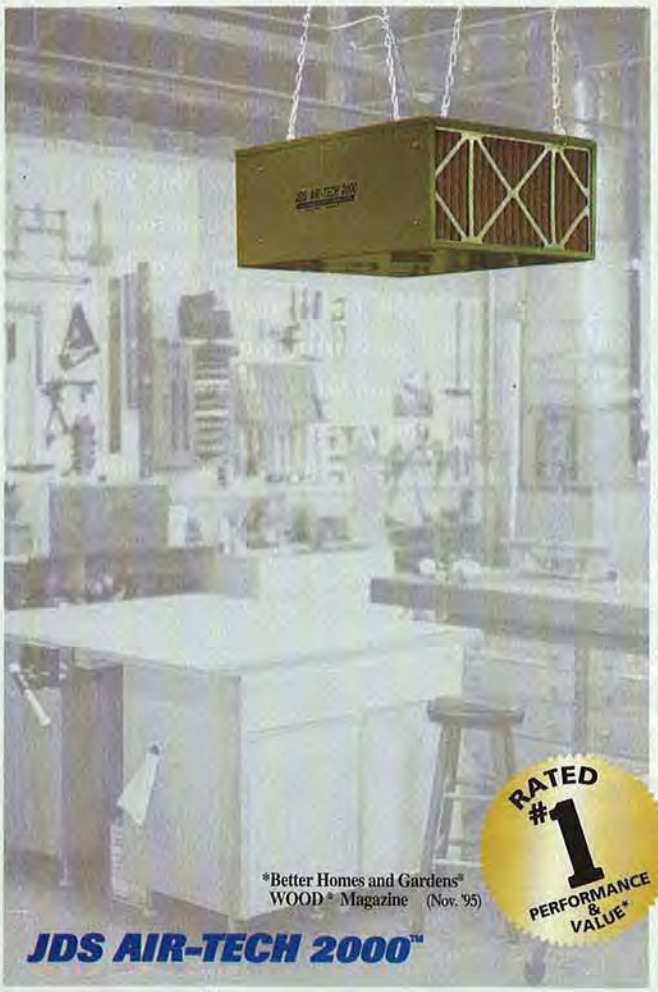
To record this tricky measurement accurately, I made a pair of molding jigs like the one shown *at right.* On each, I cut one end to 90° and the other to 45°, with the longer edge exactly 6" long. (I made the second jig with the angles switched to fit together in a corner as shown.) Then I attached a couple of triangular cleats, cut from ¾" stock, to match the spring angle (the angle between the wall and the back of the molding). Because walls and ceilings seldom meet at a true right angle, I clipped the corner off the 90° angle of the cleat so it wouldn't interfere.

To measure wall length, I simply butt these two jigs together in each corner of the room and mark the walls at the end of each jig. I then measure between the marks, add 12", and cut the molding to that length. The jigs are also handy for marking reference lines every few feet along the wall to keep the molding aligned while I fasten it in place.

—Jeff Jones, Bakersfield, Calif.


Cut molding at 45° on this end.
Spring angle
6"
Glue cleats to back side of molding.
MOLDING JIG
Cut molding at 90° on this end.
Alignment marks to position molding along length of wall
Wall
Molding jigs

Continued on page 28



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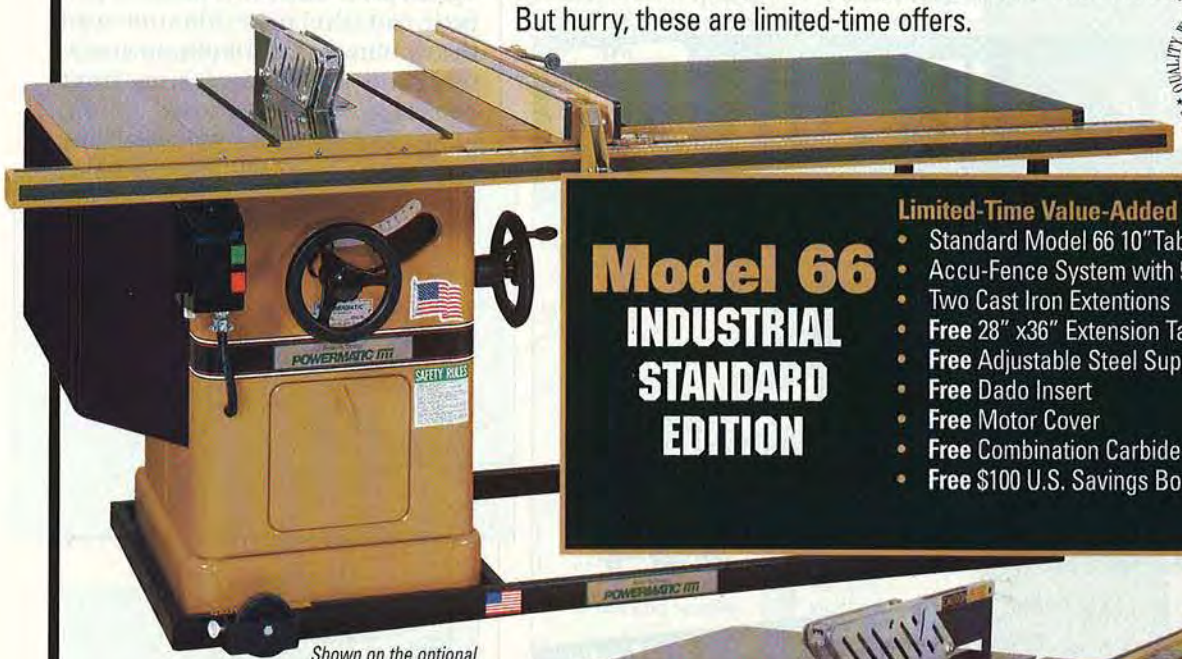

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Poplar	4/4	Select	1.55	$ 62.00
Red Oak	4/4	Select	2.40	$ 78.00
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TIPS FROM YOUR SHOP (AND OURS)

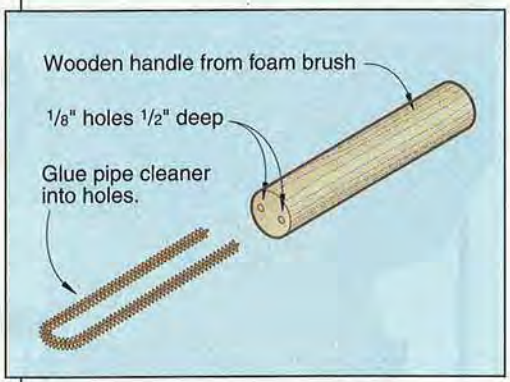
Continued from page 26

Pipe-cleaner brush gets staining detail

It's hard to get stain or paint into narrow spaces, but I solved the problem with nothing more than a wooden handle and a pipe cleaner. As shown *below*, I drilled two small holes in one end of the handle of an old foam brush, bent the pipe cleaner in half, and stuck one end in each hole.

I dip the pipe cleaner into my finish and work it into just about any tight spot. When I'm done, I just pull out the pipe cleaner and throw it away. I then pop in a new one, and I'm ready for my next project.

— Bill Allmon, Fort Worth, Texas



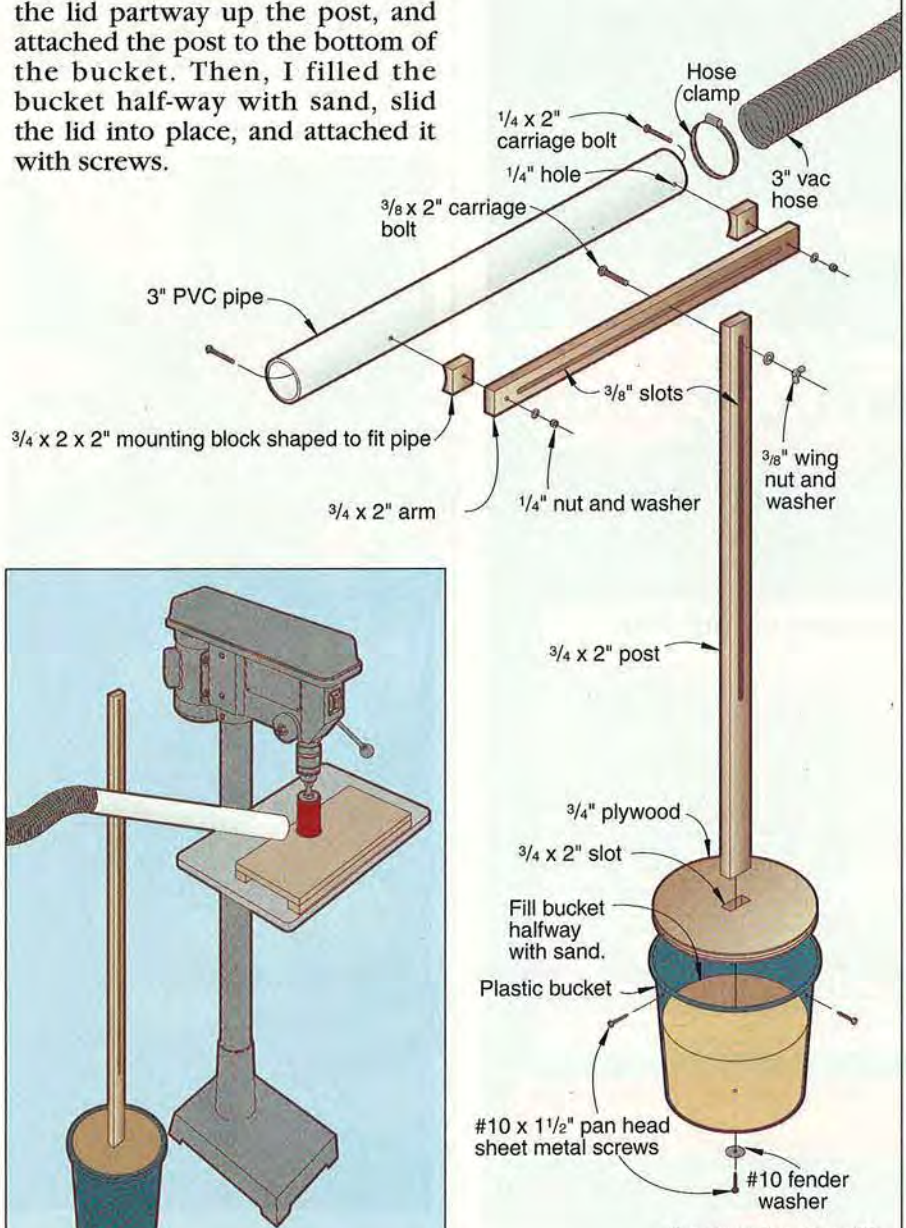
Take aim at power-tool sawdust

Rather than invest in shrouds and pipe connections for both my drill press and scrollsaw, I use a stand-mounted boom that adjusts to put suction just where I need it. To build the "dust cannon," I cut the post and mounting arm as shown below. To cut the slots in the post and arm, I made several progressively deeper passes using a plunge router equipped with a ⅜" straight bit.

Next, I cut a circular lid from ¾" plywood to fit snugly into the top of a five-gallon bucket and cut the slot for the post as shown. I slid the lid partway up the post, and attached the post to the bottom of the bucket. Then, I filled the bucket half-way with sand, slid the lid into place, and attached it with screws.

The "barrel" is made from 3" thin-walled PVC pipe. I shaped the mounting blocks to fit the curvature of the pipe, positioned the mounting blocks and arm on top of the pipe, then drilled a ¼" hole through all three pieces. I attached the arm to the post with a carriage bolt, washer, and wing nut, then bolted the pipe and mounting blocks to the arm. With a dust-collection hose clamped to the end of the pipe, I just aim my cannon at its intended target and "fire!"

—Pete Burgoyne, Wawa, Ont.


Hose clamp
1/4 x 2" carriage bolt
1/4" hole
3" vac hose
3/8 x 2" carriage bolt
3" PVC pipe
3/8" slots
3/4 x 2 x 2" mounting block shaped to fit pipe
3/8" wing nut and washer
3/4 x 2" arm
1/4" nut and washer
3/4 x 2" post
3/4" plywood
3/4 x 2" slot
Fill bucket halfway with sand.
Plastic bucket
#10 x 1 1/2" pan head sheet metal screws
#10 fender washer

Continued on page 30

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H112

TIPS FROM YOUR SHOP (AND OURS)

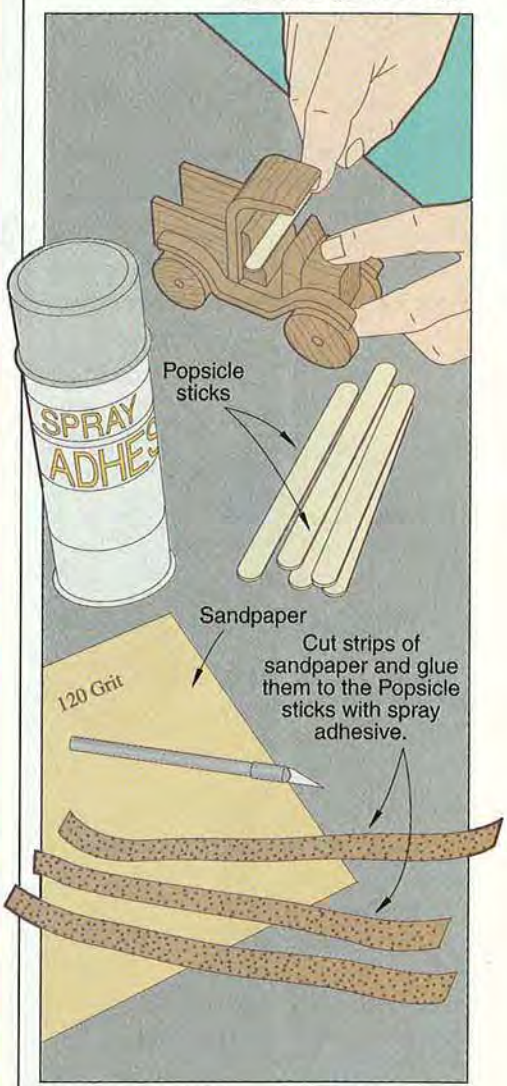
Continued from page 29

Enjoy a treat, then make a micro-sander

Whether it's leveling a few dust nibs in a finish or cleaning up a spot of dried glue, sanding into small, tight spaces can prove difficult. If you get stumped trying to sand in a spot too tight for an electric detail sander, don't despair. Just grab a Popsicle and treat yourself to a snack.

After you've finished your treat, clean and dry the small wooden stick that it comes on, and secure a strip of sandpaper to it with spray adhesive. Trim the sandpaper flush with the edges of the stick, and you'll have a great little micro-detail sander. You can also buy the sticks in bulk at most craft-supply outlets.

—John Heger, Chicago

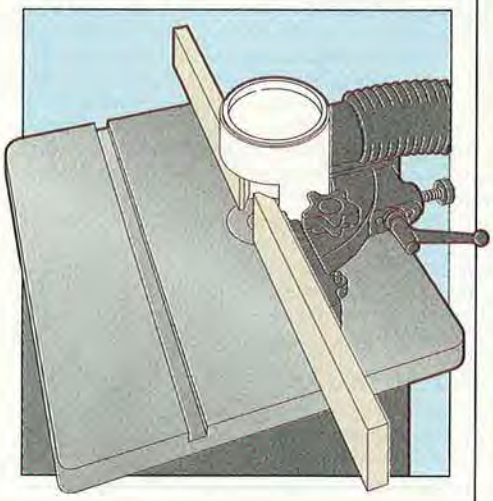

SPRAY ADHE
Popsicle sticks
Sandpaper
120 Grit
Cut strips of sandpaper and glue them to the Popsicle sticks with spray adhesive.

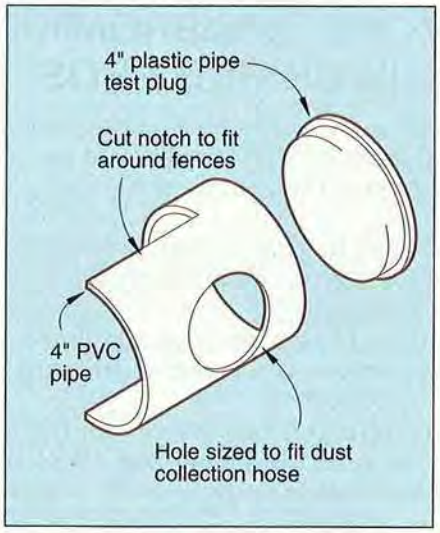
PVC hood corrals shaper dust

Few tools in my shop churn out more chips than my shaper, making a dust-collection hood a necessity. Since my older-model shaper didn't come equipped with a hood, I designed my own.

First, I cut a short length of 4" PVC drain pipe and used a bandsaw (a hacksaw would work, too) to cut a notch as shown so it fits snugly against the fence. Using a hole saw, I cut a hole in the pipe slightly smaller than the outside diameter of my dust collector hose, then filed and sanded the hole for a snug fit. I topped off the hood with a 4" PVC test plug. Since I made the hood, my shop's never been cleaner!

—Quentin J. Morris, Apple Valley, Minn.





Continued on page 32

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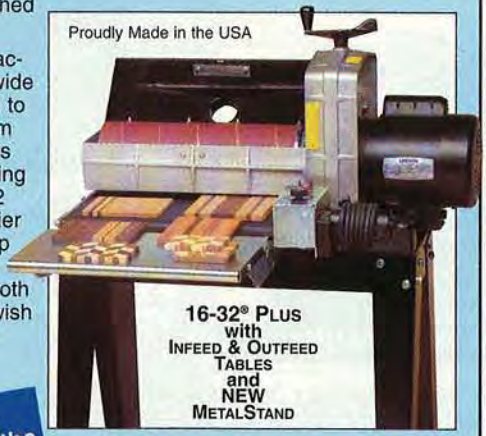

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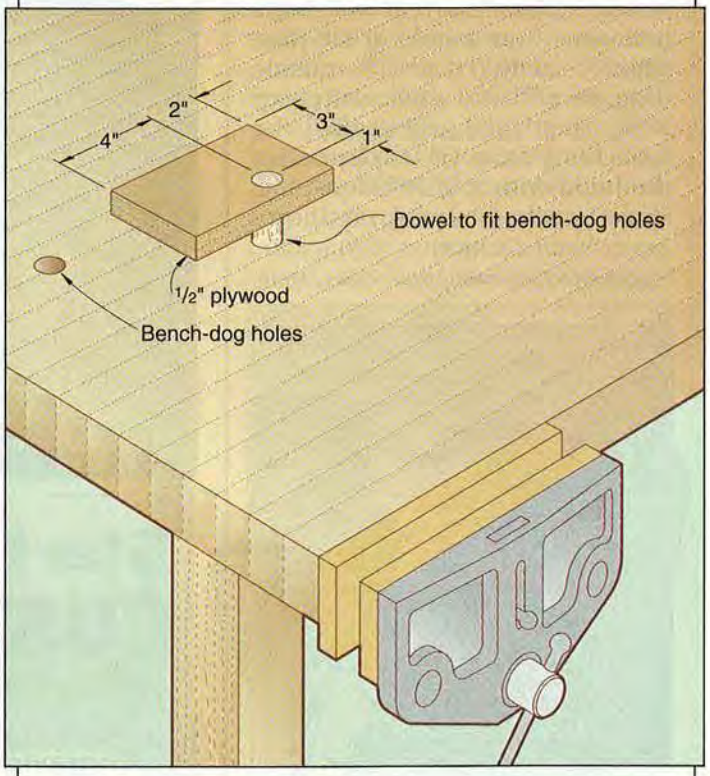
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 31

Spinning spacer extends reach of dog holes

The space between the dog holes in my workbench is longer than the opening of my vise. So, I found myself hunting for a board to bridge that gap, until I came up with the rotating stop shown *below*. Built from plywood and a short piece of dowel the same diameter as the dog holes, I just put the dowel in a hole and rotate it to add 1", 2", 3", or 4" to the reach of my vise. If you don't have a quick-action vise, you can also use the spacer to save some cranking.

— Erv Roberts, Des Moines, Iowa



A FEW MORE TIPS FROM OUR WOODWORKING PROS

- Wood movement can be a problem when you secure large solid-stock panels to a plywood carcase. See our solution in the country dresser article on *page 62*.
- Can't decide how to finish that project? Choose wisely using our "Guide to Clear Finishes" chart on *pages 74-75*.
- Make marvelous highlights on your scrollsaw work by painting before you remove the pattern. Learn how on *page 72*.
- Template routing offers an easy way to cut out parts accurately. See how it's done in the "Bent-Laminated Hang-ups" article on *page 44*.

How did I carve these?

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. . . Dave Henderson, WOOD® Magazine

American Woodworker

"With a plunge router and (the) new Router Carver System, you can create intricate, repeatable carvings on doors, panels, drawers or any flat wooden surface."
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What is the 3D Router Carver™ System?

The 3D Router Carver System is a unique patented method of producing intricate carvings quickly, economically and with complete repeatability. With the Carver Bit, Carver Templates and your 1/2" collet plunge router you can carve any flat wooden surface with designs that rival the work of a professional carver. In fact, the 3D Carver System's speed, accuracy and economy make it attractive to the professional or the serious amateur. Besides your router, the system requires three key elements:

1) The 3D Carver Bit: A 1/2" shank, carbide tipped V-Groove Bit is enclosed in a 45º guide bushing. A threaded shaft within the bit's shank allows precise depth adjustment of the tip of the V-Groove bit.

Bit Specifications: Shank: 1/2" Cut diam.: 3/4" Cut Angle: 45º Cut depth: 5/8" Guide bushing diam.: 1-7/8"

2) Template Holding Frames: Clamped or tacked to your workpiece, these frames hold the 3D Templates securely in place.

3) Carver Templates: A total of over 50 templates produce a host of designs for cabinet doors, panel doors, door rails and corners, drawer fronts and many other applications. Can you make your own templates? You'll find it pretty difficult unless you are a skilled patternmaker. Our templates feature intricate designs cut on computer-controlled machinery with precision that's difficult to match in the shop.

How does the system work?

Using the 3D Carver is easy. The bit is installed in the router (1/2" collet only) with the plunge mechanism unlocked so that the router can move up and down as you rout. The 45º bushing follows the slots in the template. As the slot gets wider, the router moves downward, so the v-groove gets wider. As the slot narrows, the router moves up and the groove gets narrower. That's it!

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Classical Door.
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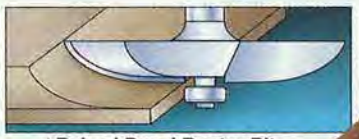

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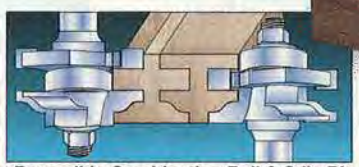

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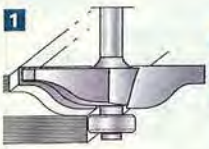

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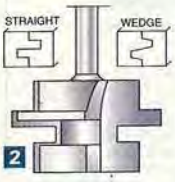

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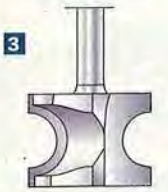

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An inexpensive plastic spreader helps to evenly apply the dark, creamy paste filler and force it down into the pores of the wood's grain. The excess must be sanded off.

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San Ramon, California, woodworker Jim Kull, 55, has been restoring furniture, building antique replications, and doing custom work full-time since he took early retirement a decade ago. "It's something that I always wanted to do, but I wasn't expecting to set up shop until I was 62," Jim offers. "Today, I love restoration, and that includes wood finishing." He reflects that in his many expert contributions to the discussion group at WOOD ONLINE®, *WOOD*® magazine's web site (www.woodmagazine.com). So, when we wanted to get filled in on filling wood grain, we turned to Jim.

Jim Kull admires the oak dining room table that he built and finished to glasslike perfection by first filling the grain.

Why fill in the first place?

"If you want a glasslike finish, such as on a desk or a tabletop, you have to fill the grain—actually the wood pores in the grain," says Jim. "Oak is the best example. You can see an oak piece with either filled grain that has a smooth, reflective finish or with unfilled grain and a semi-rough look. The difference in texture is like glass versus fabric."

Yet, as with most anything, there's more to filling than smoothness, according to Jim. "Filling is more a matter of preference for the look you want or an effect that you are trying to achieve. Because in addition to finish texture, you can either accent the grain or subdue it—making it striking or bland."

There are essentially four ways to fill the pores of a coarse-grained wood like oak, walnut, and mahogany. And from Jim's experience, none of them prove easy.

"You can fill the pores with your finish material, whether it's varnish, lacquer, or water-base," he explains. "It just takes repeated coats with sanding in between. This won't accentuate the grain any more than it is naturally. Secondly, you can use a

Continued

Fill 'Er Up For Perfection

prepared water-based filler right out of the can. It takes stain, so you can highlight the pores, but it also has distinct disadvantages—like drying too quickly—that make it difficult to use. I don't bother with it."

That leaves two options: an oil slurry and commercial oil-based paste filler. Jim prefers the oil slurry, so we asked him to go through that process first.

To create a slurry to fill the grain's pores, heavily coat the surface with a mix of natural oil and paint thinner, then vigorously sand with 100-grit paper.

Filling pores with a homemade slurry

A watery mix of insoluble materials is a slurry. To Jim, that means an oil/varnish, such as Watco Danish Oil, mixed with sanding dust. "The Watco darkens the pores for contrast," he says. "I pour a liberal amount on the surface, then sand vigorously with 100-grit—the paper has to produce sanding dust."

With burlap, a towel, or an old washcloth, Jim packs the slurry into the wood. "I don't wipe off any excess slurry," he notes. "I just let it dry overnight. Then, I sand it again, adding more oil if needed. The new sanding dust blends with the original slurry and further fills the pores when I pack it in. This time, I wipe off the excess before letting the surface dry. After the second slurrying, all the grain should be filled."

The tinted oil in the slurry will have colored the entire wood surface. To color only the pores requires removing the dried surface oil with more sanding. "If you don't want to stain the wood," Jim advises, "simply use a clear or natural oil, such as linseed oil diluted about one-third with paint thinner. Then your slurry will take on the ambient color of the wood and tend to wash out the grain for an even look [see photo *below left*]. In either case, I let the surface dry for several days before final sanding and the application of a finish coat."

Putting on commercial paste filler

"Paste filler comes from the can the consistency of peanut butter. So thin it with paint thinner, benzine, or naphtha to a heavy cream," Jim instructs. "And because a paste filler is generally off-white in color, you'll have to add stain or a tint to it if you want to accent the grain [as shown *below right*]. Otherwise, the light-colored filler will obscure it. You can purchase colored fillers, but for better results, color your own."

Jim applies the paste filler to the surface with a small plastic spreader (as shown *previous page),* pushing the creamy material across the grain into the pores of the wood. After the filler has dried, Jim sands the entire surface with 120-grit to remove the filler from the nonporous areas. The remaining filler accentuates the grain. After cleaning the surface of dust with a tack cloth, he lays down a clear finish.

According to the finishing expert, a paste filler can provide some spectacular results. "You can stain the wood dark, seal it, then put on a lighter filler for contrast. Or vice versa. Myself, I like to make the wood jump out at you."

The striking grain contrast of this oak sample came from accenting with a darkly tinted commercial paste filler.

Use an untinted, natural oil slurry to achieve an even coloration in the filled wood grain, as on this piece of oak.

Written by Peter J. Stephano Photographs: Jim Kull by Dan Sullivan; Hetherington Photography

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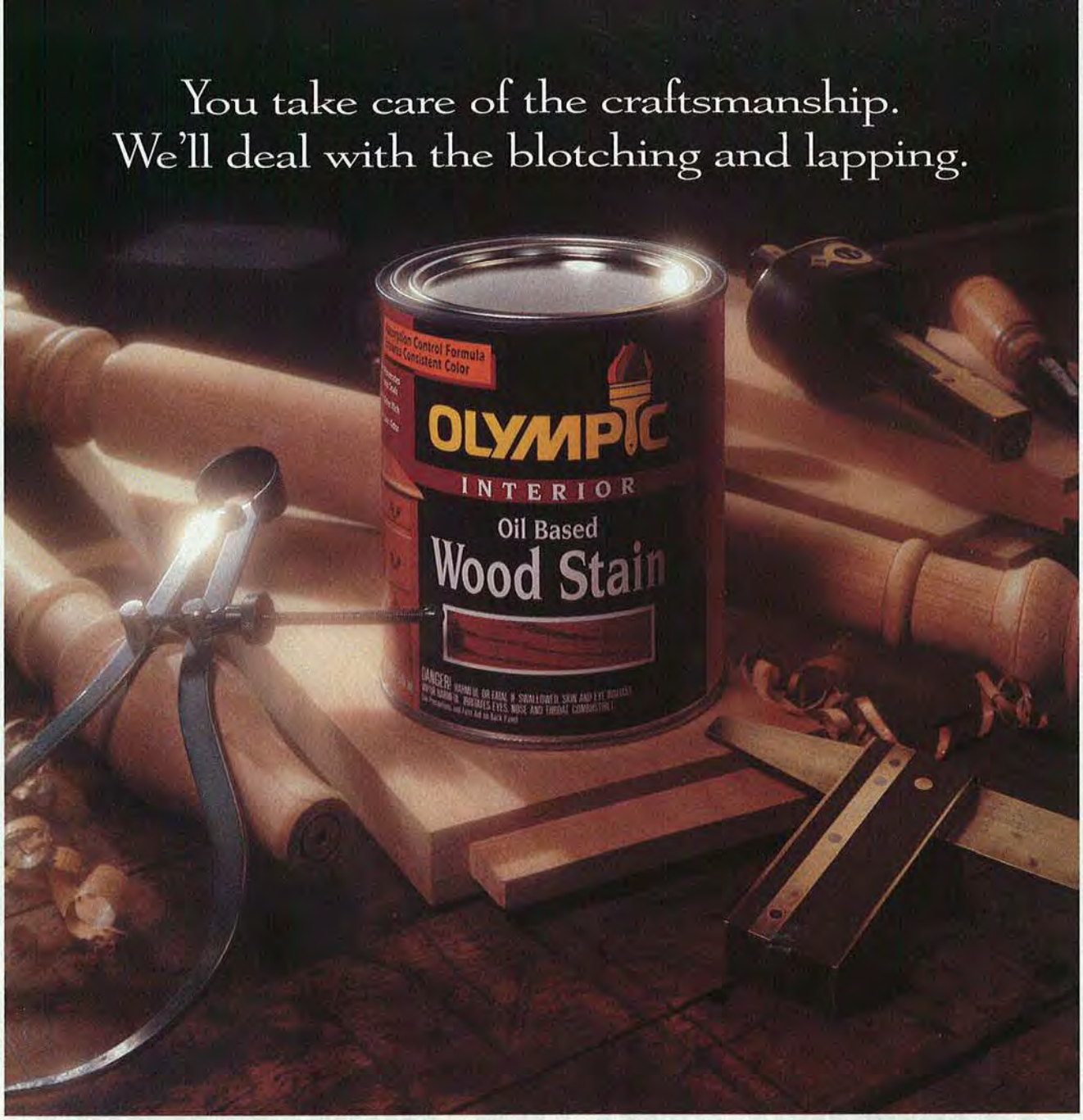

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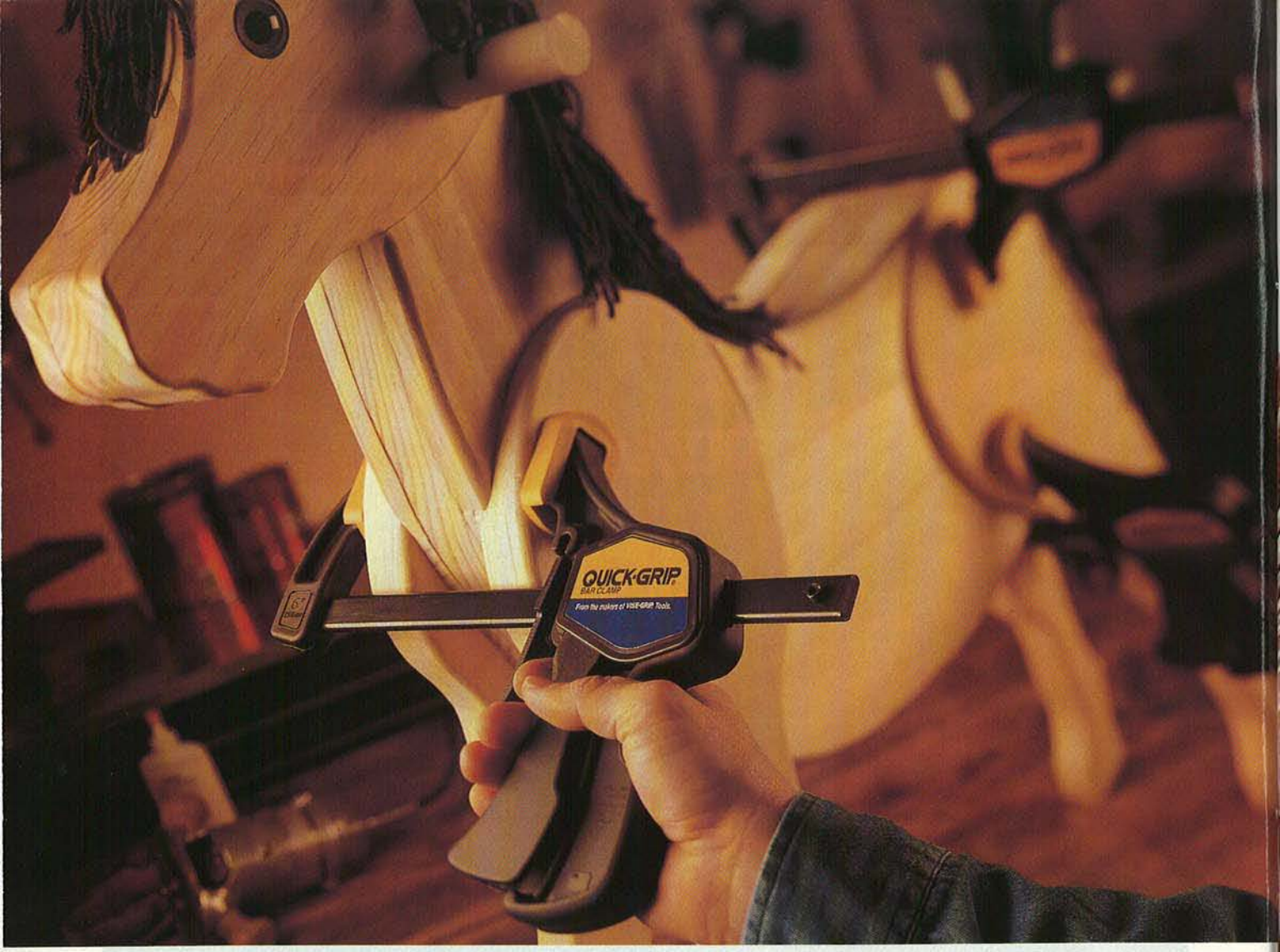

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SHOP-TESTED TECHNIQUE

BASKETMAKING in 10 Easy Steps

YOU DON'T HAVE TO HAVE A SHOP TO MAKE GREAT-LOOKING BASKETS, AND CLEANUP IS A SNAP.

ABOVE: Basketmaking doesn't involve precise joinery, but it does require concentration and a sense of order. And you easily can work the materials on a tabletop.

INSET: Joe Melcher helps his wife, Barb, gather the different spokes before starting to weave a basket.

Baskets, like furniture, often start out as trees. But instead of being made from boards, they're crafted from thin splints of ash, oak, and white cedar, or bark, roots, and stems of trees like birch, willow, and spruce. Of course, there are other materials, too, like reed, rattan, sisal, seagrass, bamboo, and jute. But unlike furniture,

Continued

Print this article

BASKETMAKING in 10 Easy Steps

BELOW: In only a few hours, Barbara created a bread basket like this 4×7×12" beauty that Joe darkened in a tea solution.

baskets require few tools, less precise measurement, and simple joinery. You don't even need a workshop. A tabletop serves quite nicely. Yet, just as with woodworking, making baskets provides relaxation and the satisfaction of creating a thing of beauty and utility.

Joe Melcher, a Des Moines, Iowa, retiree, took up basketmaking by chance four years ago while he was recovering from surgery. "My wife, Barbara, and I were spending some time at the lake in our travel trailer. I wasn't able to do much physically, and was getting bored," Joe recalls. "Then, our friend, Terri Brain-Summers, came for the weekend. She belongs to a basketmaking club in Kansas City. Of course, she brought some material along to make baskets. I got pretty interested watching her build one up, and gave it a try. I got hooked!"

Wanting to learn more, Joe took a few lessens from a local basketmaker. Now, he not only makes baskets—all kinds of them—to give away and sell, but occasionally teaches classes himself. "It's therapeutic, and rewarding, too," he says. "And I can work on them right in our living room."

We visited Joe one day to see what's involved in basketmaking. What we got was a lesson, with Barb as his motivated student. Here, you'll learn the basic steps to make a simple, straight-sided bread basket, just as we did.

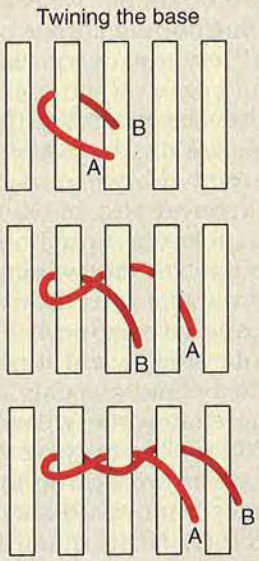
1 Laying out the spokes After cutting five 22"-long and eleven 17"-long spokes from ½" flat reed, Barb marked their centers with a pencil line on the rough side. To find the rough side, soak the reed in water for a few minutes, then fold it over your finger. The rough side will have the most tiny "whiskers" sticking up and will become the inside of the basket.

2 Weaving the bottom Barb has laid the 11 17"-long spokes horizontally (to her left and right) on the table and aligned their center marks. Then, taking a 22"-long spoke, she plain-weaved it (worked it over and under) vertically (away from her) through the 11 spokes along their center line. She repeated the weaving with the four remaining long spokes, alternating on each side of the center spoke. A clothespin held the corner as she wove.

3 Preparing the twine After truing the base to 4×10½" and squaring up the spokes so that the spaces between them were even, she prepared the round reed for twining. She had soaked the 6' length in water for a few minutes to soften it. (Basketmakers *always* keep water and a towel handy.)

Next, Barb crimped the reed with a needlenose pliers at the center of its length and folded it in half. Crimping prevents cracking when it's folded.

4 Twining the base Barb began the twining that holds the base in shape by laying the folded edge of the round reed around one of the spokes on the long side of the base next to the woven bottom. (See the drawings, *right.*) She then brought the part of the reed (now called a weaver) that was below the spoke to a position above the next spoke, keeping it tight against the weaving. Next, Barb picked up the weaver below the first spoke and wove it under the next spoke. She repeated this over-under weaving all around the base. To end the twine weave, Barb nipped off the ends of each weaver, leaving just enough material to cross a spoke and tuck into the weave.



5 Bending up the spokes When the twining of the base was complete, it was time to bring up the basket sides. Barb soaked the woven base, twining, and spokes for several minutes in the ever-present water.

To bring up the dampened spokes for the sides, Barb bent them toward the center of the basket. To avoid cracking the spokes, she gently rolled each against a pencil on their rough side (the inside). Clothespins helped hold the spokes in approximate position until they dry. When dry, they'll retain their position.

BASKETMAKING in 10 Easy Steps

SIMPLE TOOLS, COMMON MATERIALS MAKE A BASKET

In making his baskets, Joe uses only a pencil, tape measure, scissors, clothespins for clamps, needlenose pliers for crimping, and an awl to help tuck away ends. For materials, he buys readily available ¼" flat reed (1-pound coil, about 370', $6.25) and ½" flat reed (1-pound coil, about 185', $6.25), #2 round reed (1-pound coil, about 900',$2.50), and #2 seagrass (1-pound coil, approximately 300', $3.00).

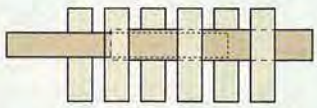
A plastic basin filled with warm water keeps the materials pliable. For staining the materials dark tan, Joe relies on a strong solution of instant tea (one part tea to one part hot water). For color, he uses RIT fabric dye.

For basketmaking materials, look under "craft supplies" in the Yellow Pages, or try the following source: Willowe's Basketry, 226 W. Main St., Greenfield, IN 46140. 800/230-3195.

6 Weaving the sides Because each row of weaving consists of one long weaver, Barb cut 15 36" long weavers from ¼"-wide flat reed to do the sides, then placed them in a basin of water. (Damp reed makes the weaving easier.) For accent, she had previously soaked three of them in water mixed with red fabric dye.

Taking one of the weavers from the basin, Barb began her weaving four spokes in from the corner on a long side. (Every row of weaving from there on began on the opposite side of the basket from the previous one.) With the weaver smooth side out, she wove over-and-under around the basket, keeping the spokes as upright as possible and tight to the twining. At the end of the first row, as with the others, she overlapped the weaver by four spokes, cut it off, then tucked it behind a spoke, as shown in the Hiding the weaver drawing *below*. (This burying of the weavers as she worked up the sides produces a more finished-looking basket.) Note that for rows 9-11, Barb used the dyed weavers. Clothespins again helped keep the weavers in place as she progressed with the sides.

Hiding the weaver



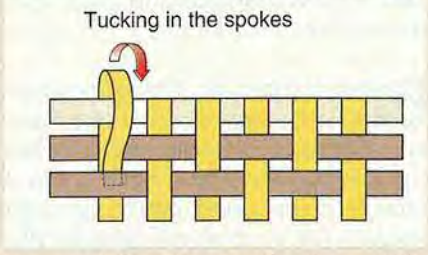
7 Trimming the spokes Finally, with her 15 rows of weaving completed the basket for rimming. But first she went around the basket pushing the rows snugly against each other. (As the weavers dry, they shrink a bit in width, loosening the weave.)

With scissors, Barb cut off the spokes that projected up from the inside of the weaving (which is every other one) even with the last weaver. The remaining spokes received a different treatment.

8 Adding the rims Barb dampened the remaining upright spokes—those on the outside of the basket—then one by one bent them down on the inside. With scissors, she trimmed each one just long enough to reach and tuck into the the three colored rows of weavers, as shown in the Tucking in the spokes drawing *below*.

To rim the basket, Barb cut two lengths of ½"-wide flat reed (same as used for the spokes) to 36". One was for the outer rim, the other for the inner. She also trimmed some #2 seagrass to the same length as the flat reed.

Tucking in the spokes



With the help of ever-present clothespins, Barb fitted the outer and inner rims to the basket, overlapping each a few inches before trimming. This effectively sandwiched the top two rows of weav-

ing. Atop the rims, she next laid down the seagrass through the makeshift clamps, butting the ends rather than overlapping them. The seagrass effectively dresses up the sandwich below it.

9 Lashing down the rim For the lashing that holds the rim and seagrass in place, Barb cut a length of ¼"-wide flat reed about 90" long and placed it in water to soak for three minutes. But because of the lashing's length and her relative inexperience in attaching rims, she called on Joe for assistance.

To begin, Joe showed her how to tuck 2" of reed up between the rims from inside the basket, rough side facing in. Then he taught her to bring the long end of the reed over the rim and insert it between two spokes at the base of the rim. Slowly, carefully, she pulled the long length through the spokes, then repeated the move. Patiently, Joe helped Barb complete the lashing (knot tiers call it whip lashing), pulling the reed tight as she fed it over and under the rim with equal spacing.

At Joe's quiet direction, Barb skillfully completed the lashing by taking the end of the reed and inserting it into the colored rows at exactly the place where the lashing had begun. A snip with the scissors trimmed the lashing reed so that the start/end "joint" was almost invisible.

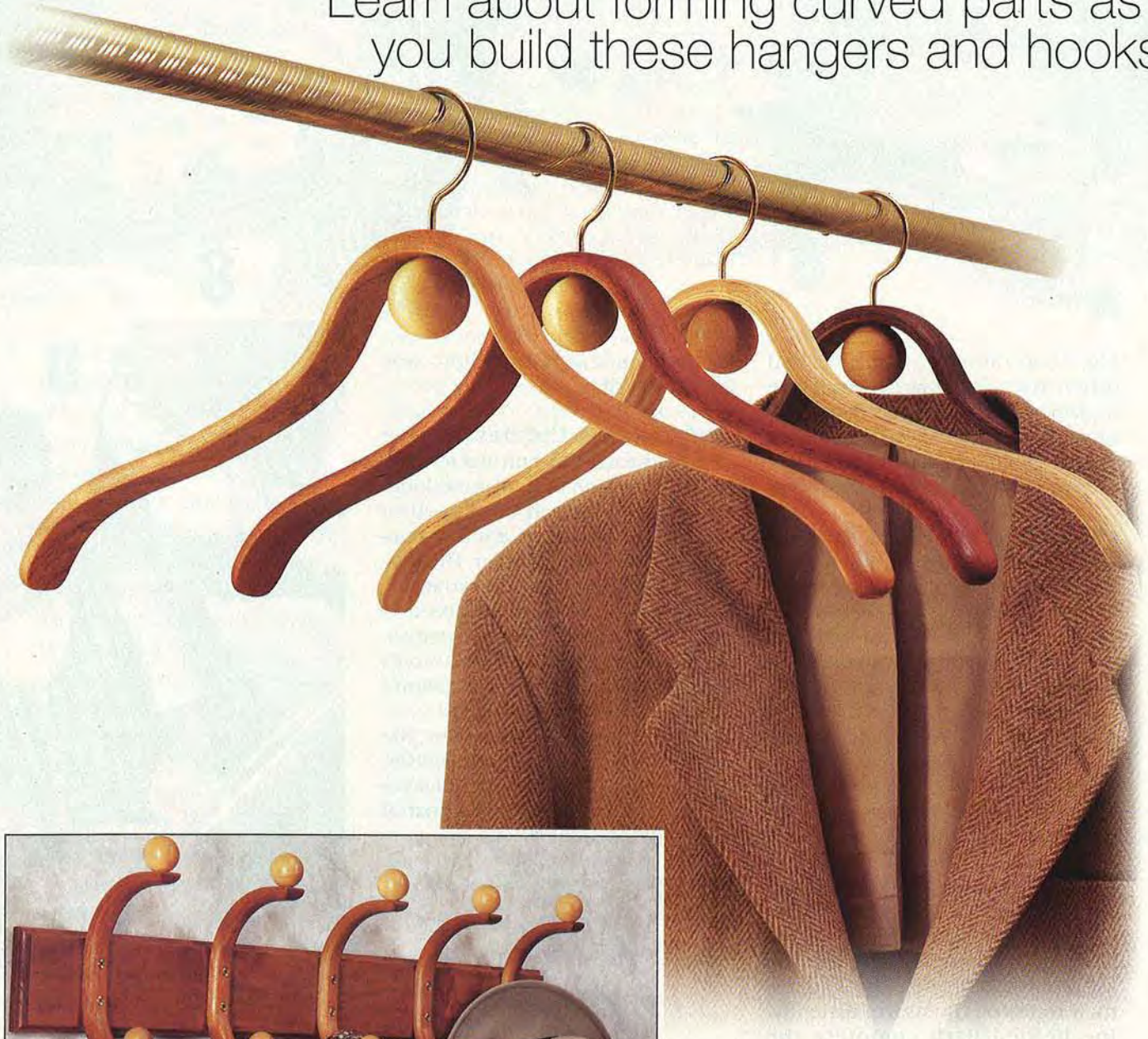
10 Staining the basket Joe advocates instant tea to stain baskets because of its natural look. Materials either can be dipped in the hot tea solution for a few minutes before weaving or the finished basket can be soaked. "Either way, be sure the reed is absolutely dry," he cautions. "Otherwise, the wet reed won't soak up enough color, or it won't take the color evenly."

If he dyes the finished basket, Joe again pushes the weaving tighter. When it has dried, he either leaves it unfinished or sprays on a coat of semi-gloss lacquer.

Written by Peter J. Stephano
Photographs: Marty Baldwin
Drawings: Roxanne LeMoine

Bent-Laminated

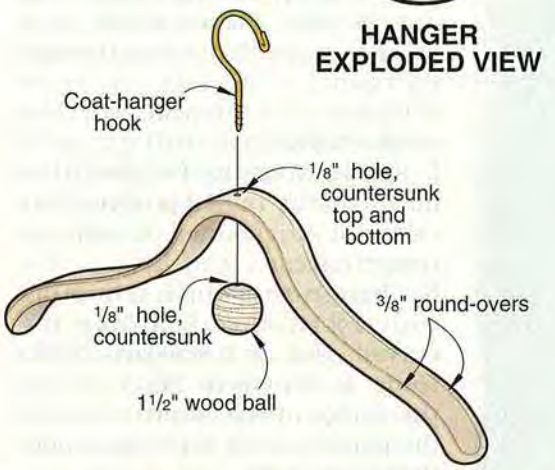
Learn about forming curved parts as you build these hangers and hooks

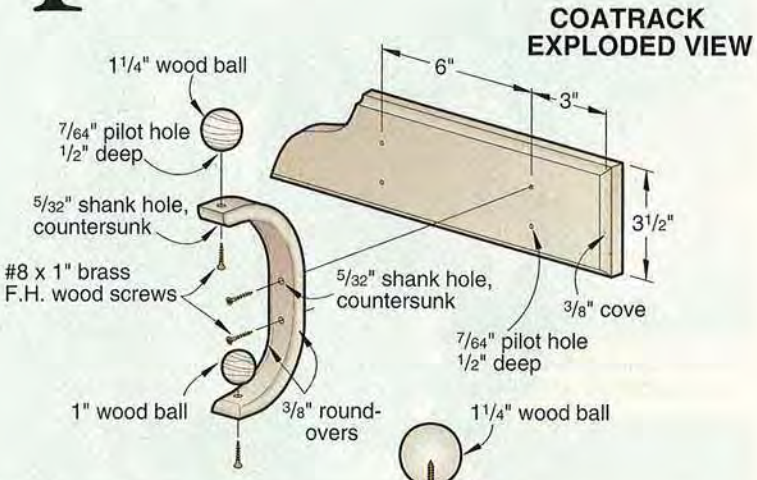


Hanging your good coat on a bent-up wire hanger almost guarantees it'll end up in a heap on the closet floor. A sturdy wooden hanger will keep your coat uncrumpled. And while you make this handsome hanger (or the companion coat hook), you'll learn all about forming strong, versatile bent laminations.

Print this article

Hang-ups





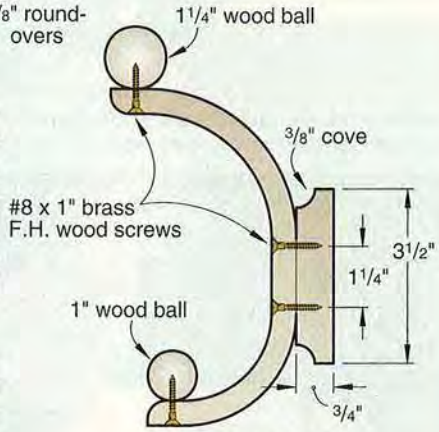
First, cut a routing template

1 Photocopy the full-size pattern for the hanger form template and/or coat hook form template. You'll find them in the *WOOD PATTERNS®* insert in the middle of the magazine.

2 With spray adhesive, adhere each pattern to ¾"-thick plywood, particleboard, or MDF. You'll need an 8×19" piece for the hanger, a 6×6" one for the coat hook.

3 Bandsaw the form template slightly outside the line. Sand to the line with a drum or spindle sander, as shown *below*. (We'll focus on the hanger as we discuss making the form and laminating the blank; follow the same procedures to make the coat hook.)

4 On a plywood template, fill any voids along the curved edge to make a smooth path for the router bit's guide bearing.



COAT HOOK
SIDE SECTION VIEW

Sand the edge of the template smooth and true. The router bit's guide bearing will ride against the curved surface.

SEE THE *WOOD PATTERNS®* INSERT FOR FULL-SIZE PATTERNS

Next, rout the two-part form

1 Laminate the form blank from two pieces of ¾"-thick plywood, particleboard, or MDF. You'll need two 12×22" pieces for the hanger form, two that measure 10×14" for the coat hook form. After the glue dries, sand the form blank's edges flush and smooth.

2 Attach the form template to the form blank with brads or finishing nails, centering the straight edge of the template along one edge of the blank. (Don't use large nails; you'll remove the template later.)

3 Rout around the curved template edge with a ½" pattern bit chucked in a handheld router (shown in *Photo B, next page*). Make the first pass with the bit adjusted to the shallowest possi-

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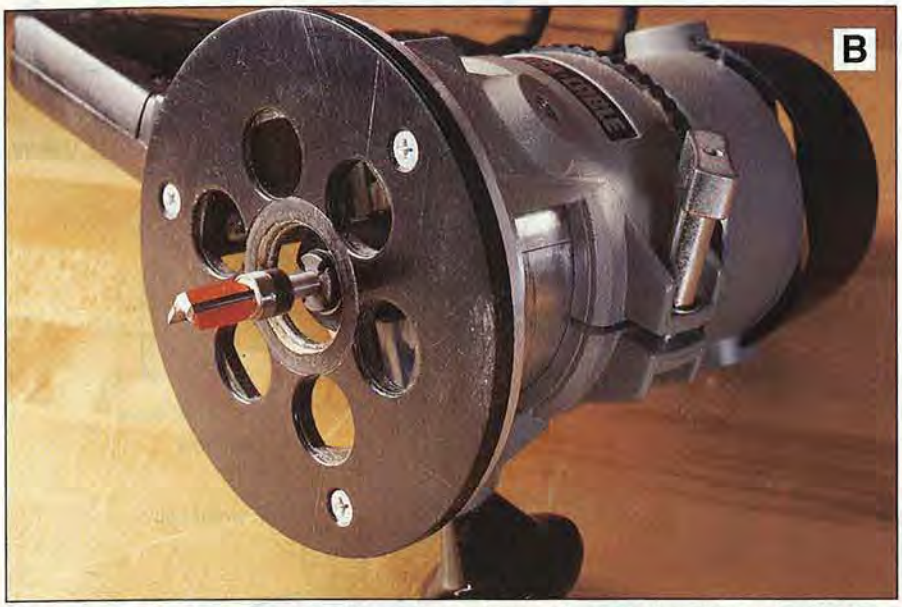
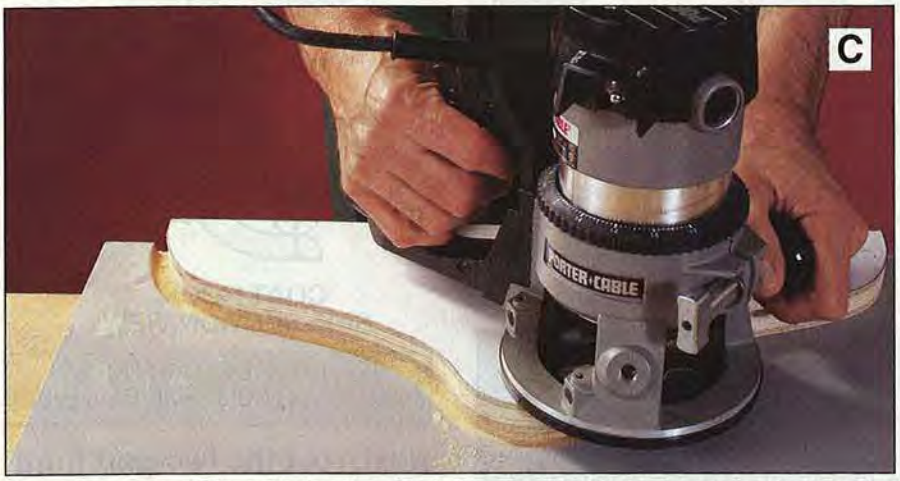


The pattern bit's guide bearing sits atop the cutter. When cutting the lamination form with this bit, make shallow passes.



Keep the pattern bit's guide bearing firmly in contact with the template when routing the form.

After separating the form sections, trim the sawn part of the edge with a flush-trimming bit. Guide against the routed part of the edge.

ble cutting depth, as shown in *Photo C*. Then, in successive passes, cutting deeper by ⅛" each time, rout to the bit's maximum depth. (But don't rout deep enough to go all the way through the blank.)

4 Remove the template from the routed blank.

5 Bandsaw or jigsaw along the middle of the routed groove. Take care not to cut into or mar the routed edges.

6 Change to a flush-trimming router bit, and complete the curved edge on both parts of the form, as shown in *Photo D*. Set the bit's cutting depth to place the guide bearing well down onto the routed edge.

7 Seal the form edges with varnish, or cover them with plastic packaging tape. Fill any voids along the edge if you made your form of plywood.

Resaw a stack of thin strips

1 Set up your tablesaw or bandsaw to resaw 1/16"-thick strips for the lamination. We sawed ours on a bandsaw, using the jig and following the technique described in the resawing article, beginning on *page 41* in the November 1998 issue of *WOOD®* magazine.

2 Cut stock to size for resawing. For each hanger, you'll need eight pieces 1½" wide and 27" long. The coat hook calls for eight strips 1¼" wide and 14" long. Almost any stock will work for hangers and hooks—we used ash, cherry, mahogany, and walnut. At the same time, cut some scrap wood for test laminations.

3 Draw an indexing mark, such as the lines shown in *Photo E*, across one end of the stock so you can restack the strips in order after resawing. This will help prevent mismatching that could result in color variations.

4 Joint one face of the stock. Then, after you resaw each strip from it, joint the face again before sawing the next one. Each piece then will have one jointed face and one sawn face.

5 Before resawing the good stock, cut eight scrapwood test pieces. Stack them, and make sure the bundle measures ½" thick. Adjust the saw setup if necessary, and retest. Then, resaw the project material.

Glue up the lamination as you bend it to your will

1 Position the two parts of the bending form on your bench, with waxed paper under them, and gather the necessary clamps. We employed two quick-acting clamps and four bar clamps.

2 Lay out the strips for the lamination in order, sawn faces up. Spread glue on the sawn faces, and restack the pieces in order. (We glued our lamination with yellow woodworker's glue.)

3 Center the stack in the form, and draw the two parts together, as shown in *Photo F*. Pull the form together steadily and evenly, keeping the lamination centered and the edges flush.

4 Switch to bar clamps as the bending nears completion. (So you won't lose headway, put on the bar clamps before loosening the others.) To prevent the springy lamination from spreading the form, add an additional clamp across the bottom, as shown in *Photo G*. Leave the clamps in place until the glue fully cures.

Take your woodworking skills right to the edge

1 Plane one edge of the laminated blank flat and true. (We did this with a block plane, as shown in *Photo H, next page*.)

2 Guiding against the planed edge, bandsaw the hanger blank to 1¼" wide, as shown in *Photo I*. Saw the coat hook to 1" wide.

3 Drum-sand the top and bottom faces. A 100- or 150-grit drum will smooth the faces and remove any scrape marks left by the forming.

4 Rout a ⅜" round-over along both top edges, as shown in *Photo J*. (The bottom edges remain square.)

Continued

Mark one end of the stock before resawing the laminations. After restacking the laminations in order, darken the mark if necessary to maintain orientation during gluing.

Pull the form sections together with quick-acting clamps. Keep sides flush as you force the lamination into the curves.

Secure the form sections with bar clamps while the glue dries. The clamp across the bottom draws the lamination tight at the ends.

Bent-Laminated Hang-ups

Form the round-overs using a ⅜" round-over bit in a table-mounted router. Start with a shallow cut, and make several passes to shape the edges. Pushblocks of the type used with a jointer serve well for this job, as shown.

5 Place the original routing template inside the lamination, and transfer the trim marks to the lamination. Also mark the centers for the holes, where shown.

6 Bandsaw the ends straight across, then round them slightly with a disc sander. Sand a ⅜" round-over on the top edge of each end to match the edges.

7 Drill and countersink holes where shown on the Hanger and Coatrack Exploded View drawings and the Coat Hook Side Section View drawing.

8 Finish-sand the hanger or hook. Use progressively finer grits from 150 to 320 for a smooth surface.

You're just about ready to hang it up on this project

1 Drill and countersink a ⅛" hole ½" deep into a 1½"-diameter wooden ball. For the coat hook, drill 7/64" holes ½" deep into a 1¼" wooden ball and a 1" one.

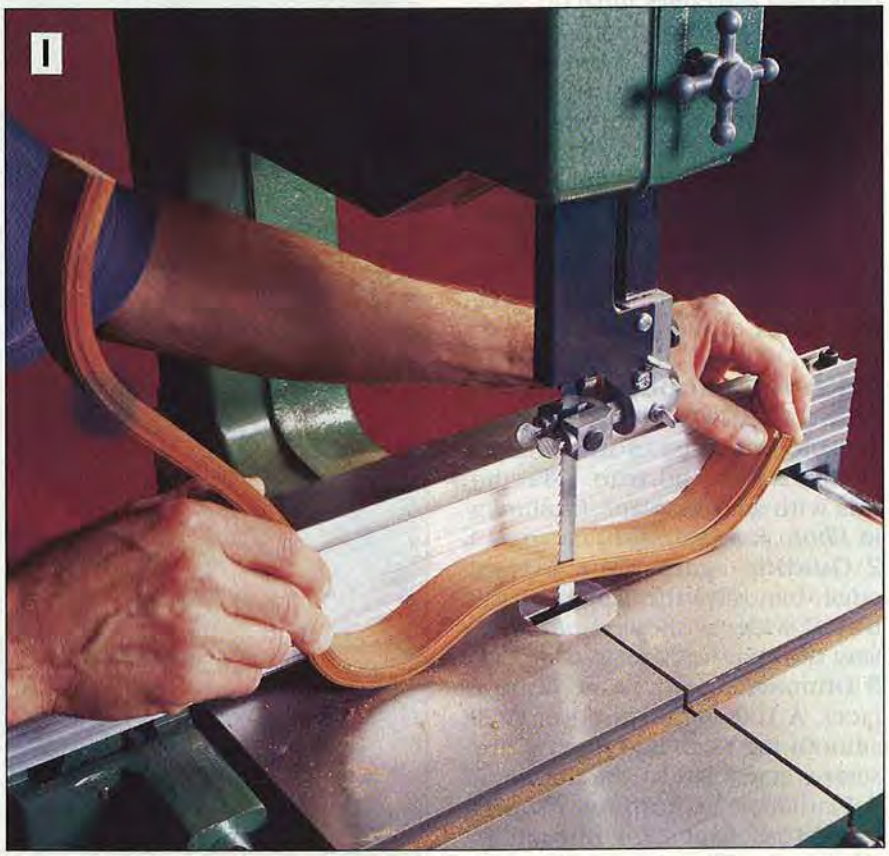
Here's an easy way to drill the balls accurately. Position a piece of ¾"-thick scrapwood beneath the chuck of your drill press, and clamp it to the table. Bore about ½" into the wood with a 1" Forstner bit.

Change to the appropriate twist drill, and lay the wooden ball in the hole in the scrapwood, as shown in *Photo K*. Grip the ball with a handscrew clamp, and drill the hole.

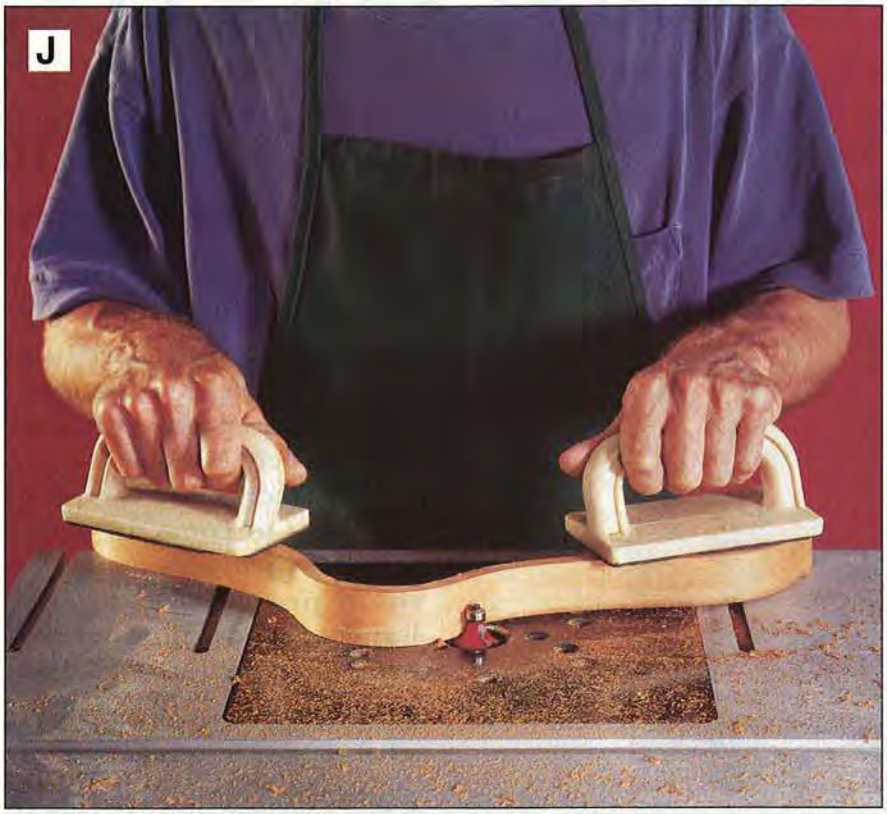
2 Finish-sand the wooden balls. Do it quickly and easily with your drill press this way: Cut the head off a #8×2" wood screw. Chuck the screw shank in your drill press, then screw the ball onto the screw point for sanding.

3 Insert the hanger hook (see the Buying Guide for our source) through the hole in the hanger. Apply epoxy glue to the threads, and screw on the 1½" ball.

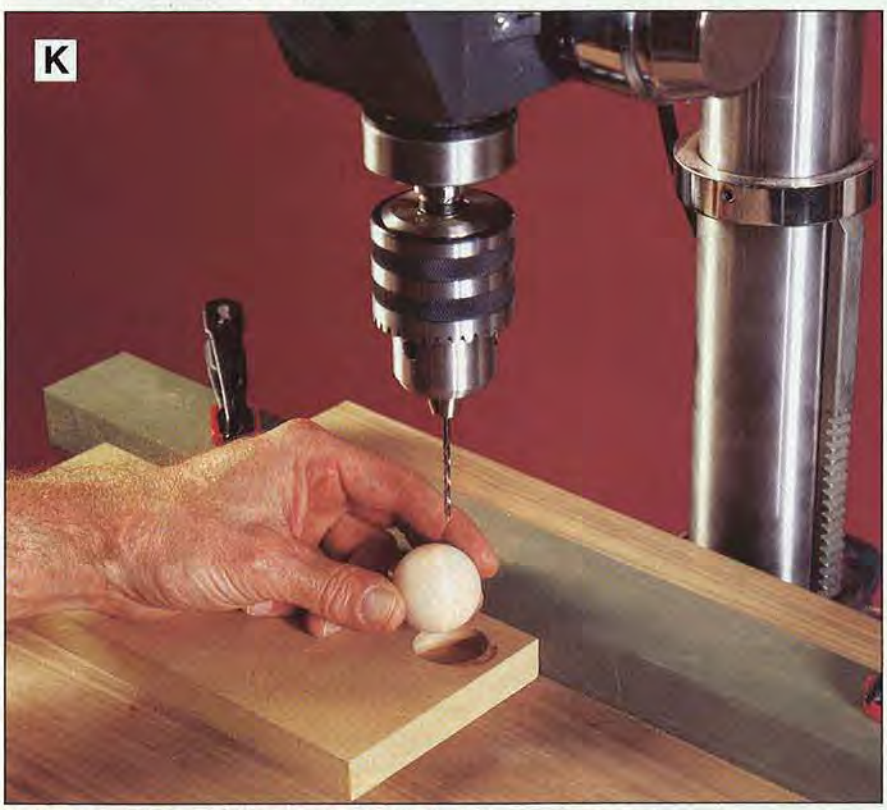
Plane one edge of the lamination smooth and straight after removing it from the form.



Guiding against the planed edge, bandsaw the laminated blank to width. Allow a little extra width, then plane or sand to finished width.



Pad-style pushblocks help safely rout round-overs on the top edges of the hanger. Rout before cutting off the ends.



A hole in a piece of scrapwood holds the ball for accurate drilling.

For the coat hook, push the screws through the holes, apply epoxy to the threads, and thread the balls on.

4 After the glue cures, apply a clear finish. We sprayed on three coats of semigloss lacquer, sanding between coats with 320-grit abrasive.

Rack up another handy item while you're at it

1 To make a coatrack with several coat hooks, multiply the number of hooks by 6". Cut a ¾×3½" board to that length.

2. Mark positions for the hooks on the board. Place the hooks 3" from each end and 6" apart. Draw a line at each location, and mark centers on the line 1⅛" from the board's top and bottom edges.

3 Drill 7/64" pilot holes at the center marks.

4 Rout a ⅜" cove around the board on the front face.

5 Finish-sand the board, and apply a clear finish.

6 Attach the coat hooks to the board with #8×1" flathead brass wood screws.

7 Hang the completed rack on the wall with screws into wall studs or suitable wall anchors.

Buying Guide

Hanger kit. Kit includes ten brass-plated coat-hanger hooks and ten 1½" wooden balls to make ten hangers. Order item no. 1428, $11.80 plus $3.95 shipping and handling in U.S. Minnesota residents add 77¢ tax.

Hook kit. Kit includes 20 1¼" and 20 1" wooden balls and 100 #8×1" brass-plated flathead wood screws to make 20 hooks. Order item no. 1429, $12.05 plus $3.95 shipping and handling in U.S. Minnesota residents add 78¢ tax.

Both kits from Meisel Hardware Specialties, P.O. Box 70W, Mound, MN 55364-0070. For credit card orders, call 800/441-9870. In Canada, call 612/479-2138.

Project Design: Jan Svec
Illustrations: Roxanne LeMoine; Lorna Johnson
Photographs: Hetherington Photography

Furniture Carving

It adds another

Many traditional furniture styles call for carved ornamentation. But let's face it: Lots of woodworkers who can build great furniture aren't accomplished carvers. So, we asked our designer and builder, Jan Svec—a furnituremaker, not a carver, by the way—to come up with a way woodworkers could give their projects that final, hand-carved touch. Here's what he came up with.

We carved two strips of leaves and attached them to a hall mirror. To build the mirror, follow the instructions beginning on *page 68* with this exception: Make the stiles (part D) 26" long instead of 39". And you can modify the size of the leaf pattern, or even curve it, to fit other furniture.

You'll need tools like these to carve the leaves

For power-carving the oak-leaf appliqués, we relied on a variable-speed hand-held rotary tool and an assortment of rotary carving bits, shown *below*. (Woodcraft

We used these bits to carve the leaf appliques—many similar styles would work. Shown are ⅛", 3⁄16", and ¼" ball cutters, a taper burr, a wire wheel, flame and teardrop ruby cutters, and a taper Typhoon bit.

Print this article

for Noncarvers

dimension to your projects

and other mail-order suppliers show the bits in their catalogs.) You could accomplish the work with other types of bits, too.

Cut out and rough out two long, leafy pieces of oak

1 Photocopy the full-size Oak Leaf Patterns (they're in the *WOOD PATTERNS®* insert in the middle of the magazine). Using spray adhesive, adhere them to two ⅜×2¼×19" pieces of oak.

2 Scrollsaw around the outline of both pieces. Do not cut the individual leaves apart.

3 Carve around the top of each overlapping leaf, as shown *below*. Cut to about half the depth of the blank, using the ball-shaped cutters (1-3 in the bit photo). This will form a channel across the top of each leaf where it overlaps another.

If you're carving with a variable-speed tool, try different speeds to see how they affect cutting effectiveness and control. We found that our Dremel MultiPro tool performed most satisfactorily on this job with the speed set about midway along the 1-5 speed scale.

4 With an aggressive taper cutter, such as the Typhoon bit shown *below right*, taper each leaf's surface from the tip to the overlap. The leaves should look something like overlapping shingles when you're done.

Taper the bottom leaf of each strip from the tip to about half the blank's thickness where the stem meets the leaf. Carve the stem to half the blank thickness.

Now, fashion the foliage

1 Shape the front of the leaves. Using the ball cutters, hollow the lobes to give the look of a curled leaf, as shown *next page, top*. Don't carve curves too deeply into the surface—the leaves can start to look like spoon bowls if you go too far.

As you work, bear in mind the cutter's direction of rotation in relation to the wood's grain. Often, you can reduce tearout and

Continued

Outline the overlapping leaves with a spherical cutter. Don't worry if you stray slightly from the pattern line.

An aggressive carbide cutter, such as this Typhoon taper bit, makes quick work of tapering the leaf surfaces.

Shape the leaves' fronts with the ball cutters, raising a central vein. Undercut the edges (at arrow, for example) with a smaller ball.

surface roughness by bringing the bit to the work from a different direction. This isn't always practical, of course.

In general, you'll get better results, too, if you work from the center of the leaf outward as much as possible. This will help prevent damage to the edges. Vary the depth of cut to create texture and to keep the leaves from looking too uniform.

2 As you shape the leaf fronts, form a raised central vein, running from the stem to the tip. You can raise the vein with a larger ball cutter, then define it better with a ⅛" ball cutter.

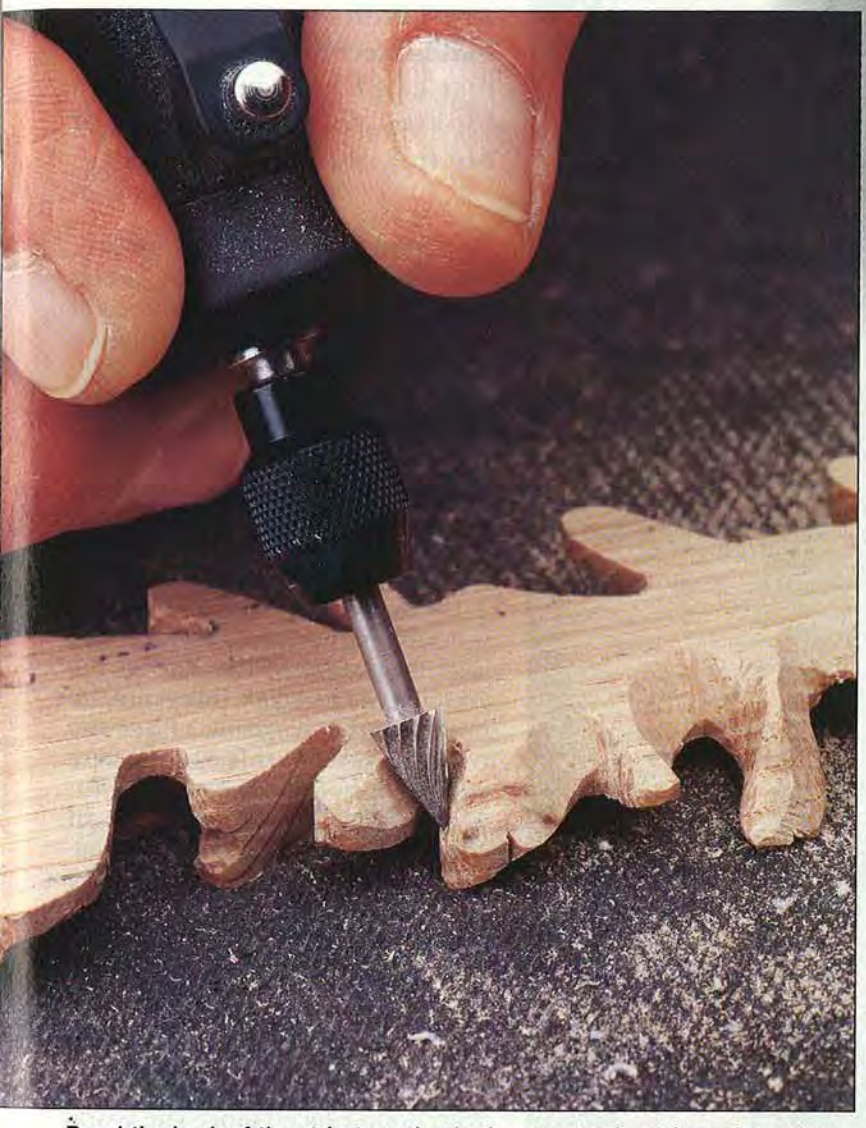
3 With the small ball cutter, undercut the top of each leaf where it overlaps another. Avoid thinning the edge too much; it can chip or break. Cut back far enough to create a shadow under the leaf; this separates the leaves and adds depth to the carving.

4 After shaping the face, turn the strip over and bevel the back edges. A taper bit works well for this, as shown *opposite page*. But be careful not to catch the point of the bit in a corner or other tight spot; this could break chips from your carving. Round the backs of the leaf lobes, curving them up toward the edges.

Bevel back slightly past each side cut to create a shadow under the entire edge. When the strip sits on a background, the leaves shouldn't appear to come straight out of it.

Complete the carvings, and glue them in place

1 With the leaves shaped front and back, turn to the ruby cutters (6, 7 in the bit photo) to smooth the surfaces. You don't need to grind away all the carving marks; leave hints of them for texture. The ruby cutters themselves will leave striations on the surface, too, lending texture.



Bevel the back of the strip to make the leaves stand out from the surface. Curve the backs of the leaf lobes.

2 Go over the front and back with a small wire wheel chucked in the carving tool. This will clean up fuzzy spots and round over thin edges. Brush off remaining pieces of the pattern.

(These techniques gave our carvings a slightly rustic look, consistent with the country style of the mirror. For a more formal look, you could sand the leaves.)

3 Mark the position for the appliqués on your furniture. Spread glue on the back of the carvings, and clamp them in place. Protect the front of the carvings during clamping with scrapwood and soft pads.

Undercutting and shaping the backs of the leaves helps visually separate the carving from the underlying surface, as shown *right*. Shadows under the carving's edges enhance the three-dimensional effect. When finishing furniture with onlaid carvings, such as the leaves, you can augment the effect of depth by staining the undercut areas slightly darker. Darkening the undercut areas on the face of the carving will add depth, too.

Project Design: Jan Svec
Illustrations: Roxanne LeMoine; Lorna Johnson
Photographs: Hetherington Photography

Art Deco-Style Photo Frame

An artistic way to display a photo

Print this article

Here's a project that's both eye-catching and easy to build—recommendations you just can't beat when you're looking for a few hours of fun in your shop.

Focus on the frame parts

1 Saw or rout ¼" rabbets 3⁄16" deep along both edges on both faces of a ½×3½×9½" piece of bird's-eye maple for the frame sides (A). You should end up with a ⅛" tongue along each edge of the stock.

2 Cut a ¼" rabbet 3⁄16" deep on both edges of one face of a ½×3½×5 1⁄16" piece of cardinal wood. This piece will become the top and bottom (B and C).

3 Lay out the frame sides (A) on the rabbeted maple. (See the full-size illustration of the side in the *WOOD PATTERNS®* insert in the middle of the magazine.) Place the wide tops of the sides at opposite ends to fit both on the piece.

4 Bandsaw the slanted edge of each side (A), cutting slightly outside the line. Sand or plane to the line. Crosscut the sides to length.

5 Saw or rout a centered ⅛" groove ¼" deep in both ends of the cardinal wood workpiece.

To saw the grooves safely, attach the workpiece to the middle of a ¾" carrier board about 16" long with double-faced tape. The workpiece must be flush with and perpendicular to the carrier's bottom edge. With the carrier riding against the tablesaw's rip fence, adjust the fence to center the groove on the workpiece. Saw one end of the part; then invert the workpiece on the carrier board to saw the other.

6 Rip a piece ½" wide from one rabbeted edge of the cardinal wood for the frame top (B). Rip a ⅞"-wide piece from the other rabbeted edge for the bottom (C).

7 Lay out the pediment (D) on a ½×1½×5⅞" piece of cardinal wood. Bandsaw the gabled top edge slightly outside the line. Sand to the line.

8 Form a 7/16" conical hole where shown near the peak. To do so, first drill a 3/16" hole 3/16" deep. Then, using a countersink (the Weldon shear-cutting type works best), enlarge the hole to about 7/16" diameter at the surface.
9 Finish-sand all parts.

They go together in a flash

1 Dry-fit parts A, B, and C. The front and back surfaces should fit flush. Position part C so the rabbets in the top and bottom (B and C) form a 5 1/16×7 1/16" rabbeted opening on the back of the frame.
2 Glue parts A, B, and C together. Position part C to establish the correct opening size. Measure the diagonals to ensure that the assembly is square. Clamp with rubber bands around the sides.
3 Glue the pediment D to the top of the frame, centering it from side to side. To assist in clamping it, reattach the wedge-shaped waste pieces to the top edges of the part with double-faced tape.

What's behind the picture?

1 Cut a piece of birch plywood to the size shown for the back (E). Saw a 1/8×1/8" rabbet all around on the good face. Drill two screw holes where shown, and countersink them on the unrabbeted side.
2 Photocopy the pattern for the leg (F). Adhere the pattern to a piece of 1/2" bird's-eye maple (we used rubber cement), and bandsaw or scrollsaw the leg.
3 Finish-sand the leg and the back.
4 Position the leg on the back, with the top 3/8" below the edge of the top rabbet. Then mark the hole locations by drilling through the back holes into the leg. Drill 5/64" pilot holes 1/2" deep in the leg. Attach the leg to the back with #4×1/2" flathead wood screws.
5 Apply a clear finish to the frame and back assembly. (We finished ours with Watco natural oil finish, following the label instructions.)
6 Install a 5×7" piece of 1/8"-thick glass in the back opening. Lay in the photograph, then the back.

To secure the back, lay a #6 brass finishing washer 1" from each corner of the back (E) on the long sides. Place the center of the washer on the side (A) with one edge overlapping the rabbet in part E. In the middle of each washer, mark a center on the side (A). Drill a 3/32" pilot hole 3/8" deep at each mark. Drive in #6×3/8" brass screws to hold the washers.

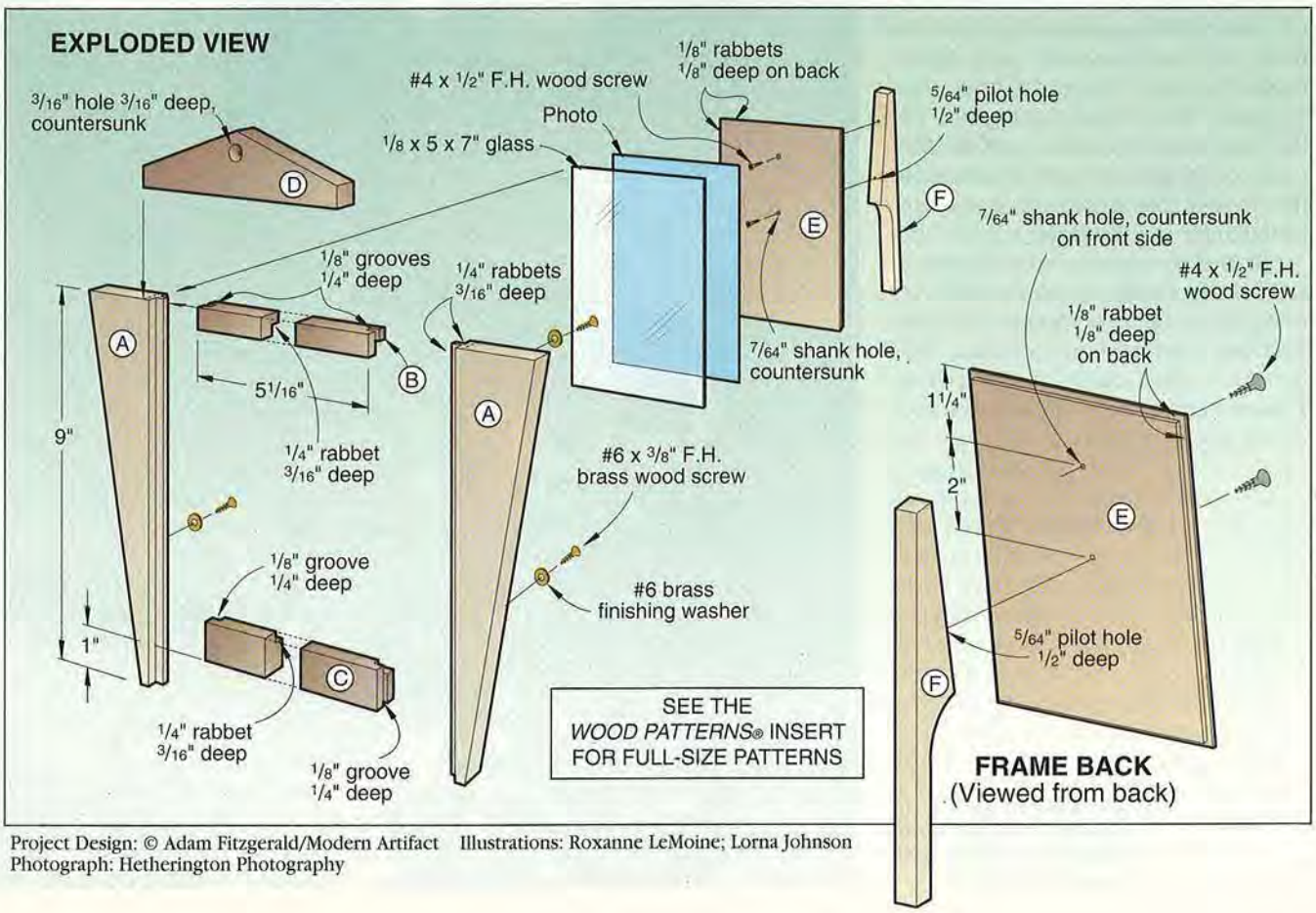
Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A* side	1/2"	2 1/4"	9"	M	2
B* top	1/2"	1/2"	5 1/16"	C	1
C* bottom	1/2"	7/8"	5 1/16"	C	1
D pediment	1/2"	1 1/2"	5 7/8"	C	1
E back	3/16"	5"	7"	BP	1
F* leg	1/2"	1 1/4"	7 7/8"	M	1

* Make larger initially, then cut to finished size in accordance with how-to instructions.

Materials Key: C–cardinal wood, M–maple, BP–birch plywood

Supplies: 1/8×5×7" glass, #6×5/8" brass screws, #6 finishing washers.


EXPLODED VIEW
3/16" hole 3/16" deep, countersunk
#4 x 1/2" F.H. wood screw
Photo
1/8 x 5 x 7" glass
1/8" rabbets 1/8" deep on back
5/64" pilot hole 1/2" deep
7/64" shank hole, countersunk on front side
#4 x 1/2" F.H. wood screw
1/8" rabbet 1/8" deep on back
1/8" grooves 1/4" deep
1/4" rabbets 3/16" deep
5 1/16"
9"
1/4" rabbet 3/16" deep
#6 x 3/8" F.H. brass wood screw
#6 brass finishing washer
1/8" groove 1/4" deep
1"
1/4" rabbet 3/16" deep
1/8" groove 1/4" deep
7/64" shank hole, countersunk
1 1/4"
2"
5/64" pilot hole 1/2" deep
SEE THE WOOD PATTERNS® INSERT FOR FULL-SIZE PATTERNS
FRAME BACK
(Viewed from back)

Project Design: © Adam Fitzgerald/Modern Artifact Illustrations: Roxanne LeMoine; Lorna Johnson
Photograph: Hetherington Photography

Join us on a tour of two Italian tool makers and witness

Blades and

Like a lot of you, I used to wonder why I should spend $30 for a router bit when I could buy the same type of bit from another manufacturer for $15. Saw blades pose a similar dilemma. But in the course of testing various brands for *WOOD*® magazine tool reviews, I've discovered that, in general, more expensive tooling results in cleaner cuts with less burning, places less strain on the machine and operator, and holds up better.

Still, I wondered what manufacturing steps produce this higher level of performance. To get some answers, I recently visited two major manufacturers based in Italy—CMT and Freud.

Why these two? Well, CMT bits came out on top in our review of router bits in the December 1994 issue. Freud products also have consistently scored high in our tests, and no company sells more high-end saw blades to you, our readers. And I was intrigued by the fact that Freud is one of the only saw-blade manufacturers in the world that makes its own carbide (more on that later).

Although many of the things I saw were similar to processes I've observed at plants in the U.S. and Taiwan, I noted some distinct differences that could make you a smarter shopper. Here's what I discovered.

Bill Krier

Bill Krier,
Assistant Managing Editor

Print this article

At CMT's plant in Pesaro, Italy, an automated lathe gives birth to a roundover bit.

Bits in the Making

Freud opens its doors and shows off its sawblade operation

It's a rare day when I get to start a factory tour in a setting as beautiful as the Grand Canal in Venice. But that's where I met Giorgio Pozzo for a 90-minute car ride to the city of Udine (pronounced Oo-dee-neh), home of Freud's six plants in the northeast corner of Italy. Giorgio is the son of founder Gianfranco Pozzo and one of three brothers involved with their father in the company.

Freud employs about 250 people in the Udine area and about 40 in its U.S. office and warehouse in High Point, North Carolina. Although Freud supplies mostly made-to-order saw blades, shaper cutters, and other industrial products for the European market, in the U.S. it sells mostly stock router bits and saw blades.

Thousands of saw blade blanks sit ready at a Freud plant, awaiting carbide teeth.

It all begins with big rolls of steel

Saw blades get their start as huge rolls of steel sheet that weigh about 3,300 pounds each. First stop for the steel: a laser capable of cutting out a saw blade, including arbor hole and expansion slots, in less than 30 seconds.

Those blanks have internal stresses in the steel that must be relieved through heat treating. Otherwise, the blade will distort during the manufacturing process and when you use it (yikes!). To relieve those stresses, the blanks go into an oven heated to 970°F. Like Freud's other automated machines, this unit runs 24 hours a day, seven days a week.

Next, a grinder makes the two sides of the blank parallel, just before another machine rolls the blank in two directions to flatten it. Then, an automated machine presses a tensioning ring into the blank as it spins under a hard metal wheel that presses into it. This ring, shown in the photo of a finished blade *below*, puts controlled stresses into the blade that prevent it from wobbling as it runs on a saw.

A machine automatically tensions each blade by pressing a ring into both sides.

This important tensioning process used to be done by workers in dark rooms who hammered the blades with hand mallets. Some manufacturers still do it this way, but Giorgio feels that his machines perform the process with greater consistency and at lower cost to the consumer.

After tensioning, workers stack the blades in a machine that precision-grinds their bores, as shown on the *next page, top*. This step makes the bore just big enough to fit onto your saw's arbor without slop. Finally, the notched surfaces that will accept carbide teeth are ground flat, smooth, and at the correct angle.

As the blanks go through the assembly process, machines check each one for runout (flatness), thickness, tension, and balance. Those that don't meet tolerances go back for correction.

Continued

Blades and Bits in the Making

Now it's time to fill in the blanks with carbide teeth

Although a good many saw-blade makers still braze each tooth in place by hand, Freud has automated this process. A machine sets a carbide tooth, flux, and a strip of solder tape into each tooth notch and then applies induction heat to melt the solder.

After the rim of the blade receives a sandblasting to remove scorch marks and excess solder, another machine checks the work of the brazing machine. As shown *below left,* the blade spins in front of electric eyes that perform 13 checks on each tooth. Improperly brazed teeth are removed and reattached by hand.

Next, the blades move to another Freud facility where some receive a bright red coat of nonstick PTFE (a Teflon-like substance). Then, multiaxis grinding machines sharpen the teeth with diamond grinding wheels as shown *below right*. These machines grind the sides, faces, and tops of the teeth to geometries that suit the intended purpose of the blade.

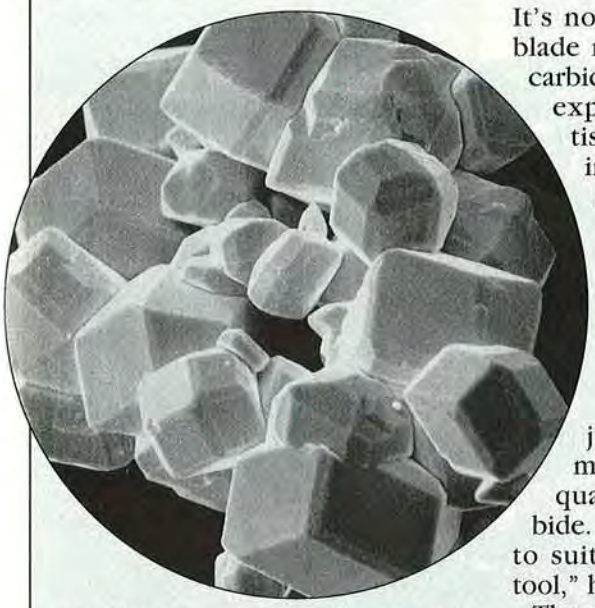
All that remains are polishing, screen-printing, clear-coating (of non-PTFE blades), and packaging steps. The final stop after a trip across the ocean: your workshop.

A long rod precision-grinds the arbors of a stack of blades to an exact diameter.

Electric eyes make 13 checks on the alignment and brazing integrity of each tooth in just a second or two.

Dual diamond wheels side-grind the carbide teeth. Other wheels grind the teeth faces and tops.

How to make carbide–one of the hardest materials on earth



Here's what tungsten grains, a carbide-component, look like magnified 5,000X by a scanning electron microscope.

It's not surprising that few saw-blade makers produce their own carbide. Doing so involves lots of expensive machinery, expertise, and raw materials costing $40 per pound. An on-site lab, equipped with a $750,000 scanning electron microscope that takes pictures like the one at *left*, is necessary to check the materials and processes.

Giorgio feels the rewards justify these hefty investments. "I can control the quality and grade of the carbide. I can fine-tune the carbide to suit the task of each cutting tool," he told me.

The carbide starts as three powders: tungsten, titanium (for resistance to corrosion and wear), and cobalt (the glue that holds these elements together). These powders are tumbled for 12 to 36 hours for a consistent mix. After a thorough drying, the mixed powder is pressed into the desired shape—say that of a saw-blade tooth—with punches like the ones shown *below*.

These pressed teeth crumble easily in your fingers, however, so Freud workers harden them through a process called sintering. To do this, they place the tips on graphite trays and load the trays in an oven as shown *below left*. Steady nerves come in handy because each tray, with tips, is worth about $1,000. The ovens heat the pressed powder in a 2,700°F vacuum to form its components into the alloy we refer to as carbide.

The payoff of this entire process comes when you pass a piece of wood through a carbide-tipped tool. Its cutting edge should stay sharp 10 to 20 times longer than a steel edge.

Continued

Trays of carbide tips go into an oven that fuses the powder together.

Freud manufactures its own punches for pressing carbide powders into the shapes of various cutting tips.

Blades and Bits in the Making

CMT router bits–like a fine wine, quality takes time

Osvaldo Tommassini worked for a motorcycle manufacturer, Benelli, when he struck out on his own to form Costruzioni Meccaniche Tommassini in 1962. Osvaldo's plan: Make quality tooling for the fledgling furniture industry near his home in Pesaro (about 150 miles south of Venice). Today, his sons Stephano and Marcello (who served as my guide) help him run the business.

CMT manufactures on a much smaller scale than Freud—its second plant had opened just before my visit. "We want to increase our production," Marcello explained, "but maintain our high quality at the same time. That's our challenge now and in the future."

A milling machine cuts the two slots that will later accommodate the carbide tips.

The birth of a router bit

CMT bits begin as bars of hot-drawn steel about 10' long. "We chose our supplier (Von Moos Stahl of Lucerne, Switzerland) carefully because it is important that the steel be just as strong on the inside of the bar as it is on the outside," Marcello told me.

These bars are loaded into a unit that cuts them to length and feeds the small steel cylinders (see Step 1) into a lathe. The lathe removes much of the steel as it whittles the shank and profile of the bit as shown on the *first page* of this article. This machine also taps the end of the bit if it will receive a pilot bearing. (See Step 2.) "At this stage, and all along the way, we take considerable pains to ensure perfect concentricity in our bits," Marcello said. "Concentricity guarantees a well-balanced, vibration-free bit for the customer."

Step 1

Step 2

Next, a milling machine cuts two slots as shown *above*. These slots provide a surface for the carbide tips that will be brazed to them later. What started as a 21-ounce chunk of steel now weighs a little more than 2 ounces. (See Step 3.)

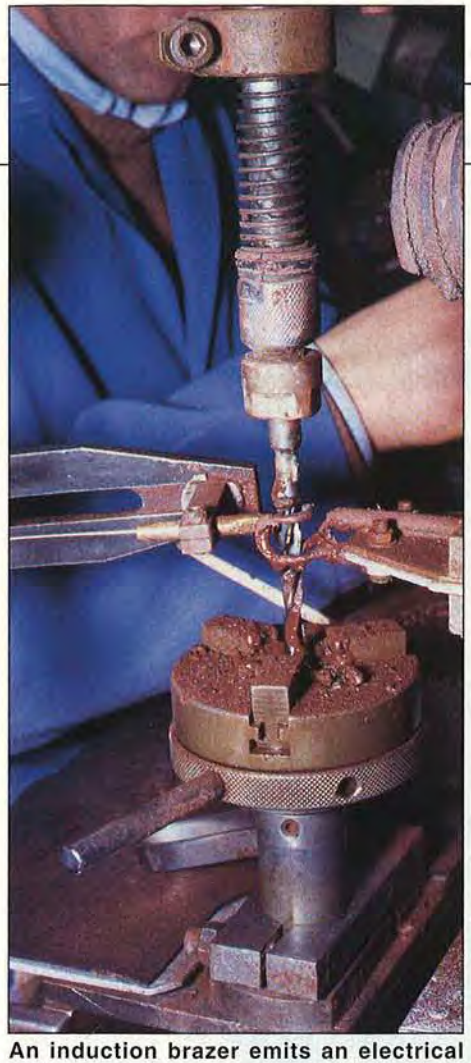
Step 3

To attach the carbide tips, CMT workers braze them on using one of two heat sources: electrical induction (shown on the *next page, top left*) or open flame. Both methods heat a bit to between 1,200° and 1,300°F. (See Step 4.)

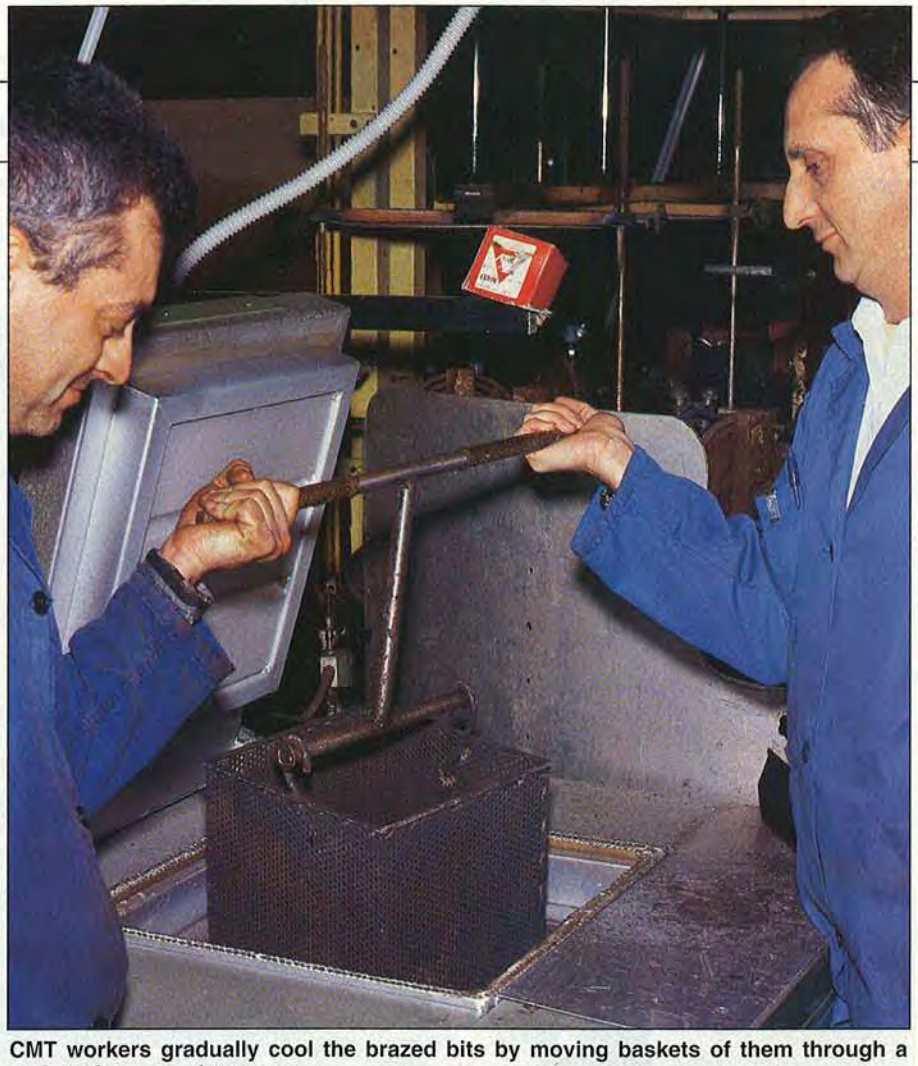
Step 4

This intense heat creates stresses in the bit because carbide and steel expand and contract at different rates in reaction to temperature changes. To preserve the integrity of the bit, it must be cooled slowly. CMT workers do this by loading bits into metal baskets as shown on the *next page, top right*. The baskets are then shuttled through a series of ever-cooler ovens. This process requires considerably more equipment and manpower than the cooling procedure I've observed in other plants: placing the hot bits in a container of insulating vermiculite. Is it more effective? The folks at CMT think so.

Another detail-oriented step I've seen only at the CMT plant occurs after the bits cool and are sandblasted. A CMT worker checks the integrity of every brazed joint by lightly grinding along the joint. "This takes time," Marcello explained, "but you can't tell if the braze has a void or other defect without grinding its surface."



An induction brazer emits an electrical field to heat a bit without touching it.



CMT workers gradually cool the brazed bits by moving baskets of them through a series of ever-cooler ovens.

It's time for a shiny new orange coat

To receive their trademark orange color, the bits are trucked to a contractor that specializes in PTFE coatings. There the bits take a bath in an ultra-sonic cleaner that removes surface impurities. Then, the PTFE is sprayed and baked on. (See Step 5.)

Step 5

Upon their return to the CMT plant, the shank of each bit is ground smooth and to the correct diameter. (See Step 6.) A machine operator chucks each bit between centers, and then a grinding wheel lightly touches the rapidly spinning bit. The operator then checks the diameter of the ground bit shanks (see photo at *right*).

Step 6

Step 7

Next comes the all-important process where the faces and edges of the carbide tips are ground to create a razor-sharp cutting edge. (See Step 7.) After grinding a seat for the bearing, workers laser-etch the shank with a model number and a code that tells the factory when the bit was made. With a bearing added, the bit is ready for duty (See Step 8).

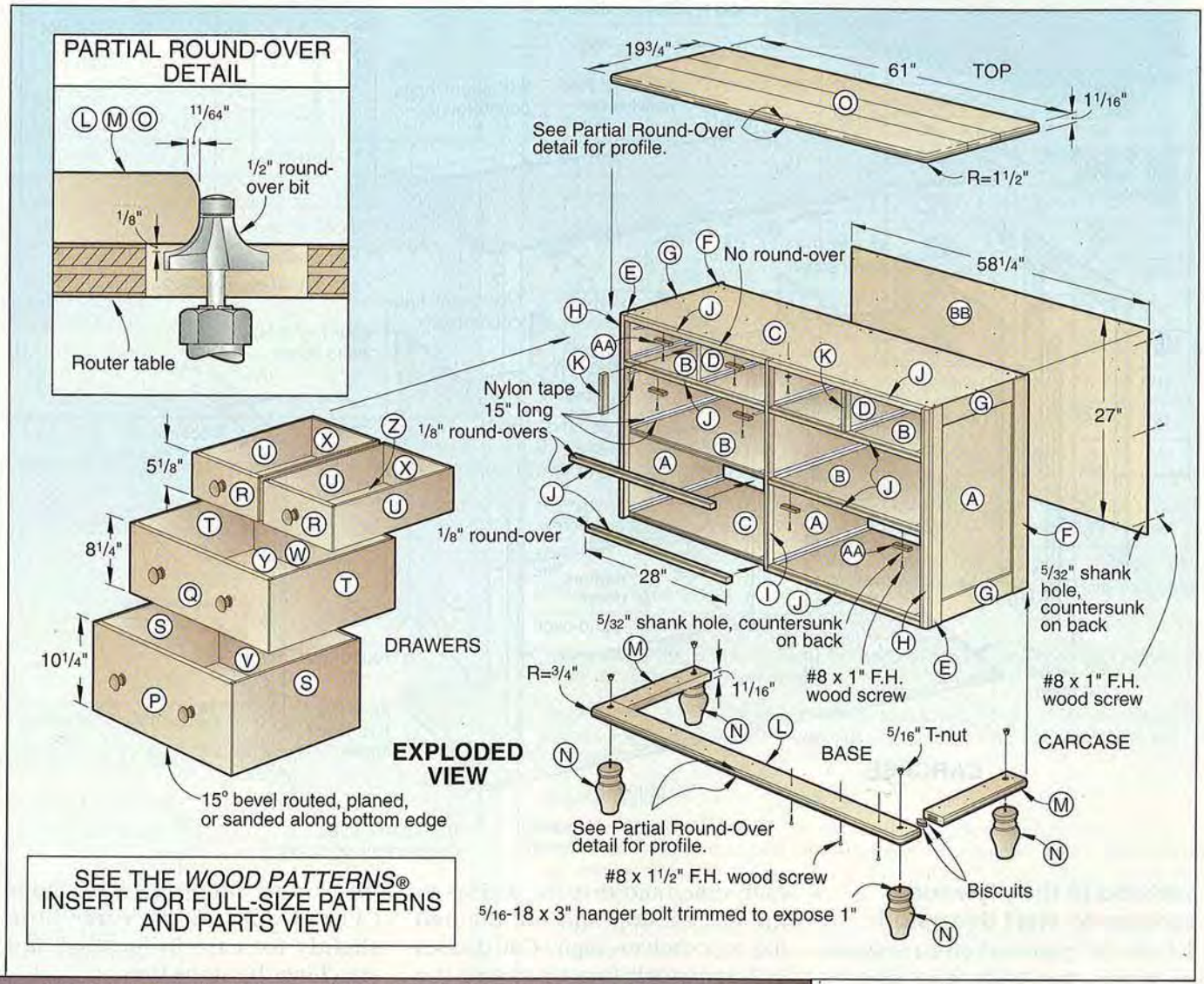
Step 8

Photographs: Bill Krier, Doug Hetherington; others courtesy of CMT and Freud

A micrometer helps this worker accurately check the diameter of ground shanks.

Country-Fresh Dresser

and Mirror



SEE THE *WOOD PATTERNS®* INSERT FOR FULL-SIZE PATTERNS AND PARTS VIEW

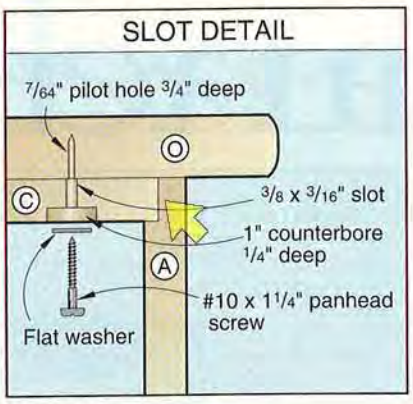
See the previous issue for the chest, and check upcoming issues for the plans for the bed and matching nightstands.

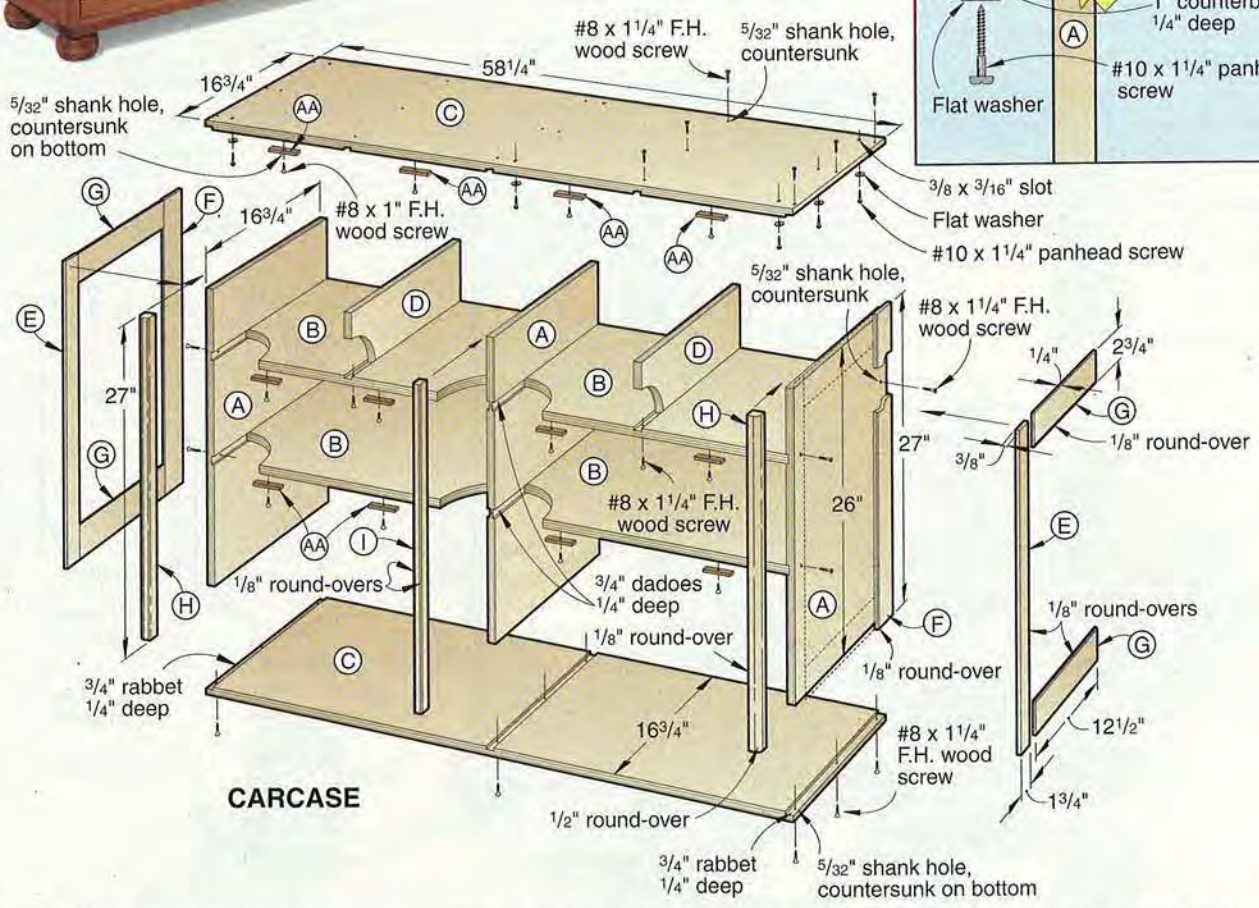
Finding all the plans you need for a complete set of bedroom furniture can try the patience of any craftsman. And finding a set as attractive as the five pieces we're presenting–well, that's really an accomplishment. Here we introduce another outstanding addition to our Country-Fresh Series. We begin with the sturdy dresser shown here, and follow up with the accompanying mirror on *page 68*.

Print this article

Dresser and Mirror

Stained and fitted with brass hardware, the dresser fits in nicely with most traditional decors.





CARCASE

Let's build the plywood carcase to start things off

1 From ¾" plywood (we used oak plywood, but walnut or cherry would be equally attractive), cut the sides and center divider (A), shelves (B), top and bottom (C), and dividers (D) to the sizes listed in the Bill of Materials and laid out on the Cutting Diagram.

2 Cut or rout all the rabbets and dadoes in the sides and center divider (A), top shelves (B), and top and bottom (C) where dimensioned on the Parts View drawings on the *WOOD PATTERNS®* insert in the middle of the magazine. (We cut the dadoes on our tablesaw, using the fence to ensure that the dadoes in the sides and center divider align with each other and that the dadoes in the carcase top and bottom and the top shelves align. Cut dadoes in scrap stock first to ensure the width of the dado is the same as the thickness of the plywood. Use shims if necessary to obtain the correct dado width.)

3 Using the Carcase Top drawing on the pattern insert and the detail accompanying the Carcase drawing for reference, drill the counterbores and form the slots in the carcase top (C). The slots allow the screws that secure the top (O) to the carcase top (C) to move as the solid-stock top expands and contracts.

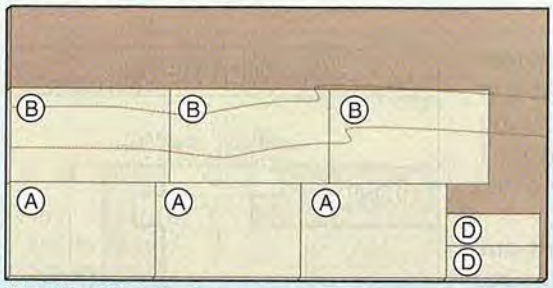
4 Using the Top Section View and Carcase Top drawings for reference, drill holes on the bottom of the carcase top to attach the stops (AA). Countersink each hole slightly for ease in locating and attaching the stops later.

5 Dry-clamp the carcase (A–D) together, checking for square. Drill and countersink the mounting holes centered over the rabbets and dadoes where shown on the Carcase Side (A) and Carcase Top (C) drawings on the pattern insert. The front and back trim pieces (E, F) will cover the screw holes in the sides later.

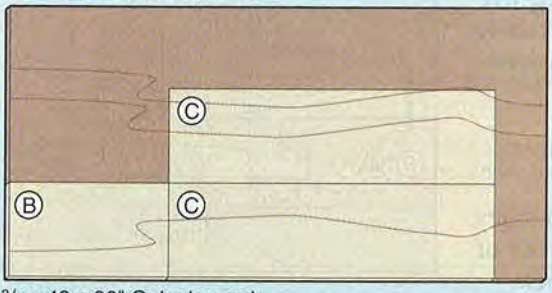
6 Glue the carcase together; add the carcase top last as shown in Photo A. Check for square and that the edges are flush. Drive the screws to further reinforce the assembly. Wipe off any excess glue with a damp cloth.

Continued on page 66

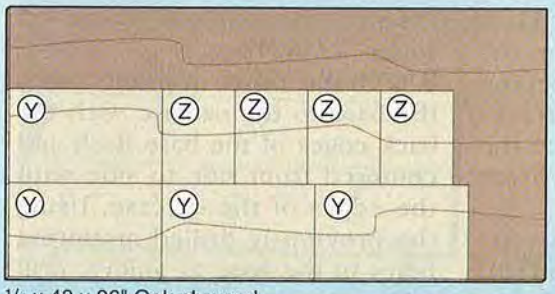
CUTTING DIAGRAM



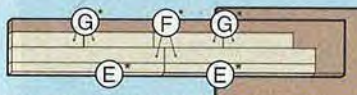
3/4 x 48 x 96" Oak plywood



3/4 x 48 x 96" Oak plywood



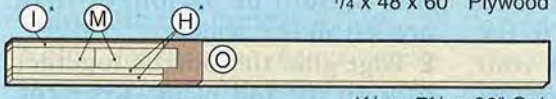
1/4 x 48 x 96" Oak plywood



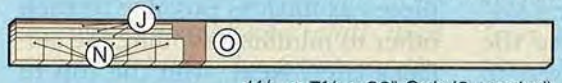
1/2 x 7 1/4 x 60" Oak

* Plane or resaw to thicknesses listed in the Bill of Materials.

1/4 x 48 x 60" Plywood

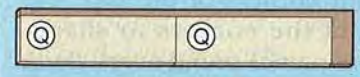


1 1/16 x 7 1/4 x 96" Oak



1 1/16 x 7 1/4 x 96" Oak (2 needed)

1 1/16 x 5 1/2 x 96" Oak



3/4 x 9 1/4 x 60" Oak

3/4 x 11 1/4 x 96" Oak

1/2 x 11 1/4 x 96" Oak or Aspen

1/2 x 9 1/4 x 96" Oak or Aspen

1/2 x 11 1/4 x 96" Oak or Aspen

1/2 x 11 1/4 x 96" Oak or Aspen

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
CARCASE AND TRIM					
A sides & center	3/4"	16 3/4"	26"	OP	3
B shelves	3/4"	16 3/4"	28 1/2"	OP	4
C top & bottom	3/4"	16 3/4"	58 1/4"	OP	2
D dividers	3/4"	5 3/4"	16 3/4"	OP	2
E front trim	3/8"	1 3/4"	27"	O	2
F back trim	3/8"	2 3/4"	27"	O	2
G top & btm. trim	1/4"	2 3/4"	12 1/2"	O	4
FACE FRAME					
H vert. front outside caps	1"	1 1/8"	27"	O	2
I vert. front middle cap	1"	3/4"	27"	O	1
J horiz. front caps	7/8"	3/4"	28"	O	8
K vert. fronts	3/4"	3/4"	5 1/4"	O	2
BASE					
L front	1 1/16"	3 1/2"	59 1/2"	O	1
M sides	1 1/16"	3 1/2"	14 3/4"	O	2
N feet	3 1/2" dia.		5"	LO	4

Part	Finished Size T	W	L	Matl.	Qty.
TOP					
O* top	1 1/16"	19 3/4"	61"	EO	1
DRAWERS					
P fronts	3/4"	10 1/4"	27 7/8"	O	2
Q fronts	3/4"	8 1/4"	27 7/8"	O	2
R fronts	3/4"	5 1/8"	13 1/2"	O	4
S sides	1/2"	10 1/4"	17 3/16"	C	4
T sides	1/2"	8 1/4"	17 3/16"	C	4
U sides	1/2"	5 1/8"	17 3/16"	C	8
V backs	1/2"	10 1/4"	27 3/8"	C	2
W backs	1/2"	8 1/4"	27 3/8"	C	2
X backs	1/2"	5 1/8"	13"	C	4
Y bottoms	1/4"	16 1/16"	27 3/8"	P	4
Z bottoms	1/4"	16 1/16"	13"	P	4
AA stops	3/8"	3/4"	3"	O	12
BACK					
BB back	1/4"	27"	58 1/4"	P	1

*Cut parts marked with an * oversize. Trim to finished size according to the how-to instructions.

Materials Key: OP–oak plywood; O–oak; LO–laminated oak; EO–edge-joined oak; C–choice of oak, aspen, soft maple, or poplar; P–plywood.

Supplies: #8x1", #8x1 1/4", and #8x1 1/2" flathead wood screws; 9–#10x1 1/4" panhead screws with flat washers; 4–5/16" T-nuts; 5/16-18x3" hanger bolts (not necessary if you buy the preturned feet); stain, clear finish.

Buying Guide

Hardware. For the country version, we used twelve 2" oak mushroom knobs, #61710. For the traditional version (stained with no paint), we used twelve 3 1/2" brass bail pulls, #35402. Self-adhesive and self-lubricating nylon tape, 10 mil. thick by 1/2" wide by 10' long (4 rolls needed), #70615. Rockler Woodworking and Hardware, 4365 Willow Drive, Medina, MN 55340. To order, call 800/279-4441.

Turned feet. Country version, four 3 1/2" diameter by 5"-long oak bun feet, catalog #A0557HB5. For the traditional version, use four 5" diameter by 3"-long oak beaded bun feet, catalog #A0551HB. For current prices write Adams Wood Products, 974 Forest Drive, Morristown, TN 37814. Or call 423/587-2942 to place an order.

Dresser and Mirror

When assembling the plywood carcase, glue and screw the plywood carcase top in place last.

Apply the trim pieces for a finished look

1 Cut the side trim pieces (E, F) to size from ⅜" stock. Cut the top and bottom trim pieces (G) to size from ¼" stock.

2 Rout ⅛" round-overs along the edges of the solid-stock trim pieces (E, F, G) where shown on the Carcase drawing.

3 Keeping the front edges of the front trim pieces (E) flush with the front of the carcase, glue and clamp the trim pieces in place. Add the top and bottom trim pieces (G) next, followed by the back trim pieces (F).

4 To cap the fronts of the carcase, cut the front trim pieces (H, I) to size. Before cutting the pieces, measure the width of the carcase sides plus the side trim (ours measured 1⅛"), and cut the trim pieces (H) to match. See the Top Section View on the pattern insert for reference. Now, cut the center trim piece (I) to the same width as the thickness of your plywood.

5 Rout the ⅛" and ½" round-overs on parts H and I where shown on the Carcase drawing.

6 With the edges flush, glue and clamp the pieces (H, I) in place.

7 Measure the distance between trim pieces H and I, and cut the horizontal trim pieces (J) to fit.

8 Using the Exploded View drawing for reference, rout the ⅛" round-overs on parts J where indicated. Note that there's no round-over along the top edge of the top J pieces and no round-over along the bottom edge of the bottom J pieces. Glue and clamp the front trim pieces (J) in place.

9 Measure the opening, and cut the short trim pieces (K) to size. Rout ⅛" round-overs along the edges (not the ends) of both K pieces. Glue and clamp the pieces in place.

Make a sturdy base for the dresser carcase

1 Cut the base front (L) and sides (M) to the sizes listed in the Bill of Materials from 1⅛16"-thick stock.

2 To join the base sides (M) to the front (L), use a double biscuit or spline joint. Glue and clamp the base sides to the front, keeping the outside edges and surfaces flush. Check for square. See the Base drawing on the pattern insert for reference.

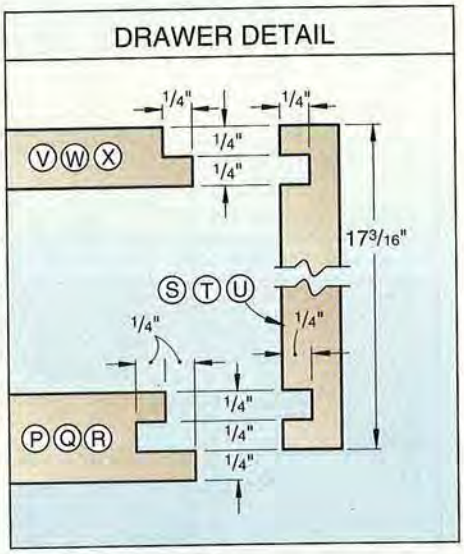
3 Mark and cut a ¾" radius on the front corners of the base front (L).

4 Rout a partial round-over on the top and bottom outside edges of the base (L, M) where shown on the Exploded View drawing and the Partial Round-Over detail.

5 Drill the mounting holes in the base pieces where shown on the Base drawing.

6 For the feet (N), you can turn your own using the pattern on the pattern insert or order preturned feet from the source listed in the Buying Guide. If you turn your own, laminate stock to form feet that measure 4¼" square (3½" after turning). Then refer to the full-size pattern on the insert to turn them. Drill a center hole and add the hanger bolt (the preturned feet come with a hanger bolt installed).

7 Use a hacksaw to trim the protruding end of each foot hanger bolt so only 1" protrudes. The top of the bolt shouldn't protrude above the top surface of the base (L, M) when inserted.



8 Tap a 5⁄16" T-nut into each ⅞" counterbore (four total) in the top surface of the base.

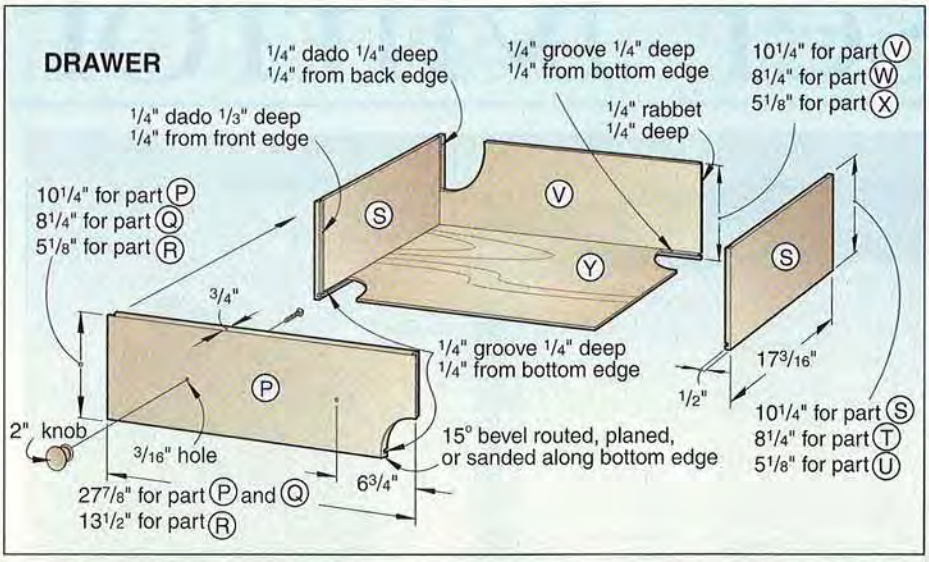
9 With the T-nuts in place, clamp the base to the carcase with the back edges of the base flush and centered from side to side with the edges of the carcase. Using the previously drilled mounting holes in the base as guides, drill pilot holes into the bottom of the dresser, and drive screws to secure the base in place.

Now attach the edge-joined top to the carcase

1 From 1⅛16" stock (commonly called five-quarter stock), rip enough narrower pieces to form the top (O). Your initial lamination should be 1" longer than needed and ½" wider.

2 Edge-glue the boards together to form the top blank. Keep the pieces as flush as possible to each other to minimize sanding the surfaces later. Next, trim the top to the finished size listed in the Bill of Materials.

3 Mark and cut a 1½" radius on the front corners of the top. Cut and sand the corners to shape. Rout the partial round-overs along the front and sides of the top. See the Partial Round-Over detail accompanying the Exploded View drawing for reference.



After selecting straight-grained stock and matching it from board to board, we edge-joined the pieces into two panels. From these, we cut the drawer fronts.

Build the eight drawers to complete the construction

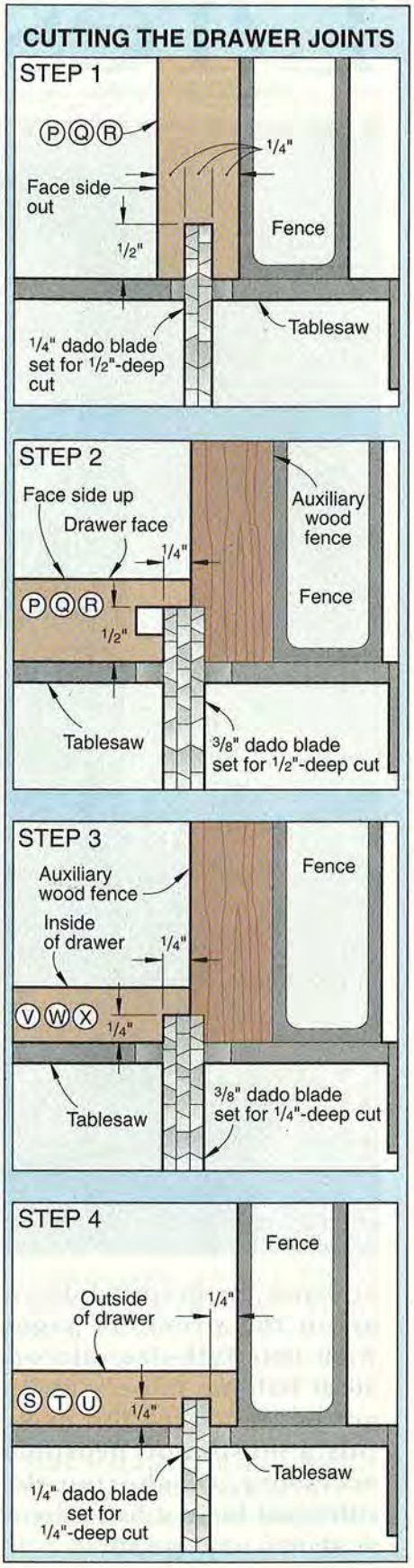
Note: *Measure the drawer openings before constructing the drawers. The drawers need to be 1/8" less in height and width than the openings. The fronts of the drawers should sit 1/8" back from the front edges of the horizontal front trim pieces (J). Cut several extra pieces of 1/2" stock to test-cut your joints before cutting the actual drawer stock.*

1 Cut the drawer fronts (P, Q, R) to size from ¾"-thick straight-grained oak. (As shown in *Photo B,* we carefully matched and edge-joined stock to form two large panels. Then we cut the drawer fronts from the panels in the configuration shown. Not only did the grain flow across the drawers from left to right, but the transition of the grain pattern between the drawer fronts, top to bottom, was minimal.)

2 From ½" stock, rip and crosscut the sides (S, T, U) and backs (V, W, X) to the sizes listed in the Bill of Materials.

3 Study the Drawer detail, then follow *Steps 1 and 2* of the four-step drawing at *right* to machine the ends of the drawer fronts.

Continued on page 82



Country-Fresh Dresser Mirror

Enhance the beautiful dresser on the previous pages with this full-size mirror. Stout half-lap joinery and a gracefully curved top make this a must-build bedroom accessory. Or shorten the stiles and build a hall mirror as shown on *page 50*.

Start with the sturdy half-lap frame

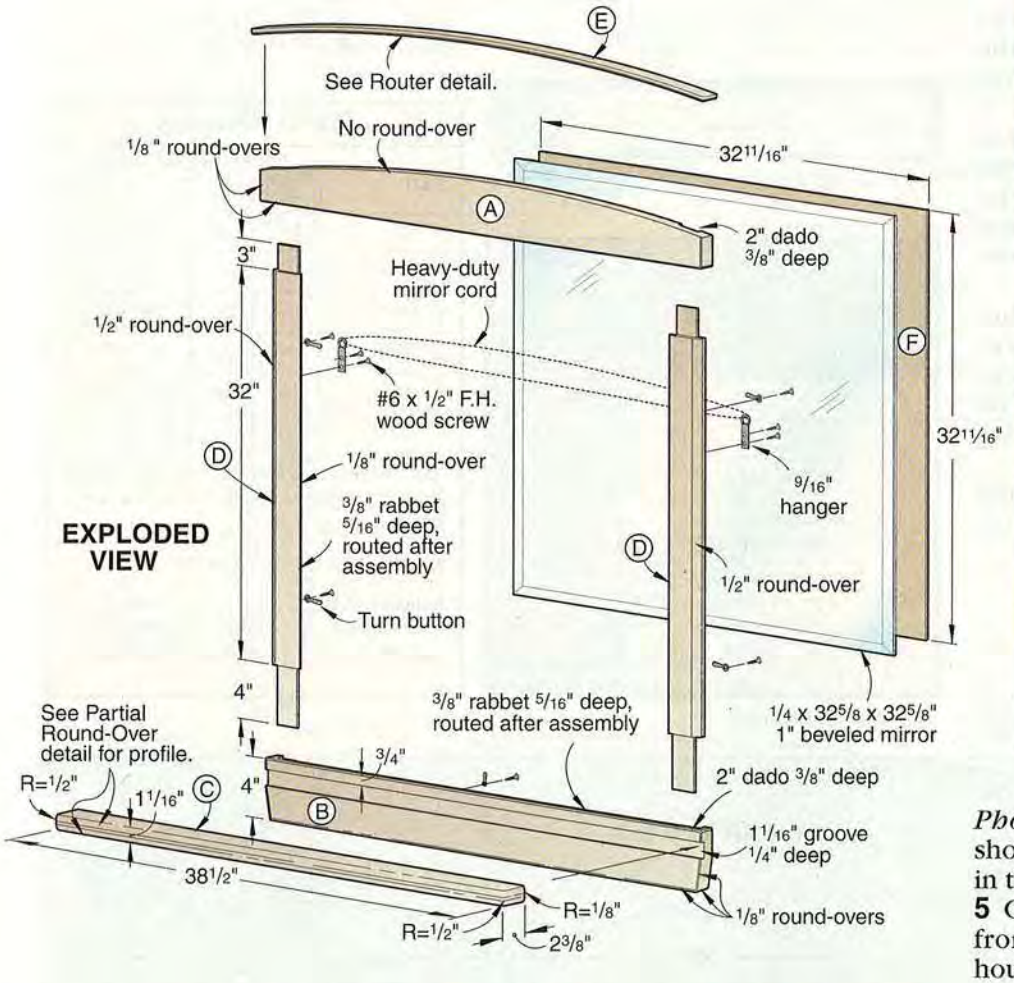
1 Cut the top (A) to 4×38" from 1 1/16" (five-quarter) stock.

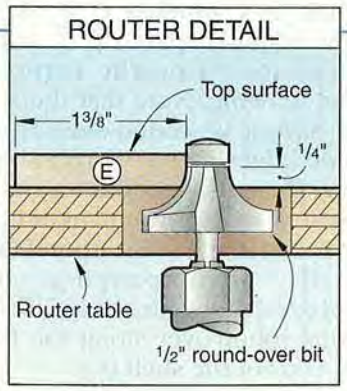
2 Cut the bottom (B), shelf (C), stiles (D), and top trim (E) to the sizes listed in the Bill of Materials. Mark and cut a ½" radius on the front corners of the shelf (C).

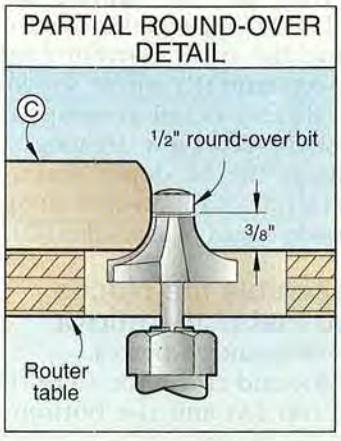
3 Fit your tablesaw with a dado blade, and cut 2"-wide dadoes ⅜" deep in the top (A) and bottom (B) where located on the Lap Joint and Parts View drawings.

4 Lay out and cut the ⅜"-deep half-lap joints on the ends of the stiles (D). Then raise the blade and cut a shoulder along the outside edge of each stile as shown in

Reflect your craftsmanship and good taste







Use a tablesaw fitted with a dado blade to cut a shoulder on each half-lap so the stile fits snugly into the mating joints.

Clamp the top trim piece in place, and use it as a fairing strip to mark the curved cutline on the top piece.

Photo A. The ends of the stiles should fit snugly into the dadoes in the top and bottom pieces.

5 Cut a ¼"-deep groove in the front edge of the bottom (B) to house the shelf (C).

Let's shape the arched top and bottom

1 To mark the arch along the top of the top (A), mark five points on part A where dimensioned on the Parts View drawing. As shown in *Photo B,* bend and clamp the top trim (E) to the top (A), aligning the inside edge of E with the five marks. Trace along the inside edge of the trim to mark a smooth curve along the length of part A.

2 Bandsaw to the line marked in the previous step. Sand the cut edge smooth.

3 Mark and miter-cut the angles on the ends of the bottom (B) where dimensioned on the Parts View drawing.

Continued

Dresser Mirror

Turn to the router to rout the round-overs

1 Rout a ⅛" round-over along the front edges of parts A, B, and D where shown on the Exploded View drawing. Note that the stiles (D) have a ⅛" round-over on the inside edges and a ½" round-over along the outside edges.

2 Switch to a ½" round-over bit as shown in the Partial Round-Over detail accompanying the Exploded View drawing. Rout a partial round-over along the front and ends of the shelf (C).

3 Lower the ½" round-over bit, and rout a partial round-over along the front bottom edge of the top trim (E) where shown on the Router detail accompanying the Exploded View drawing.

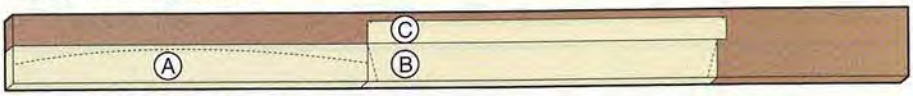
4 Reset the bit depth again, and rout a full ½" round-over along the outside edges of the stiles (D).

Assemble the pieces, and install the mirror

1 Finish-sand all pieces.

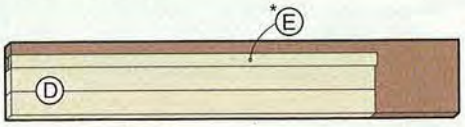
2 Glue and clamp the stiles (D) to the top (A) and the bottom (B),

CUTTING DIAGRAM

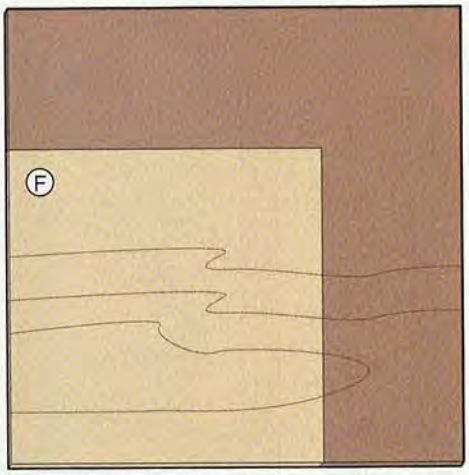


1 1/16 x 7 1/4 x 96" Oak

*Plane or resaw to thickness listed in the Bill of Materials.



3/4 x 7 1/4 x 48" Oak



1/4 x 48 x 48" Plywood

Bill of Materials

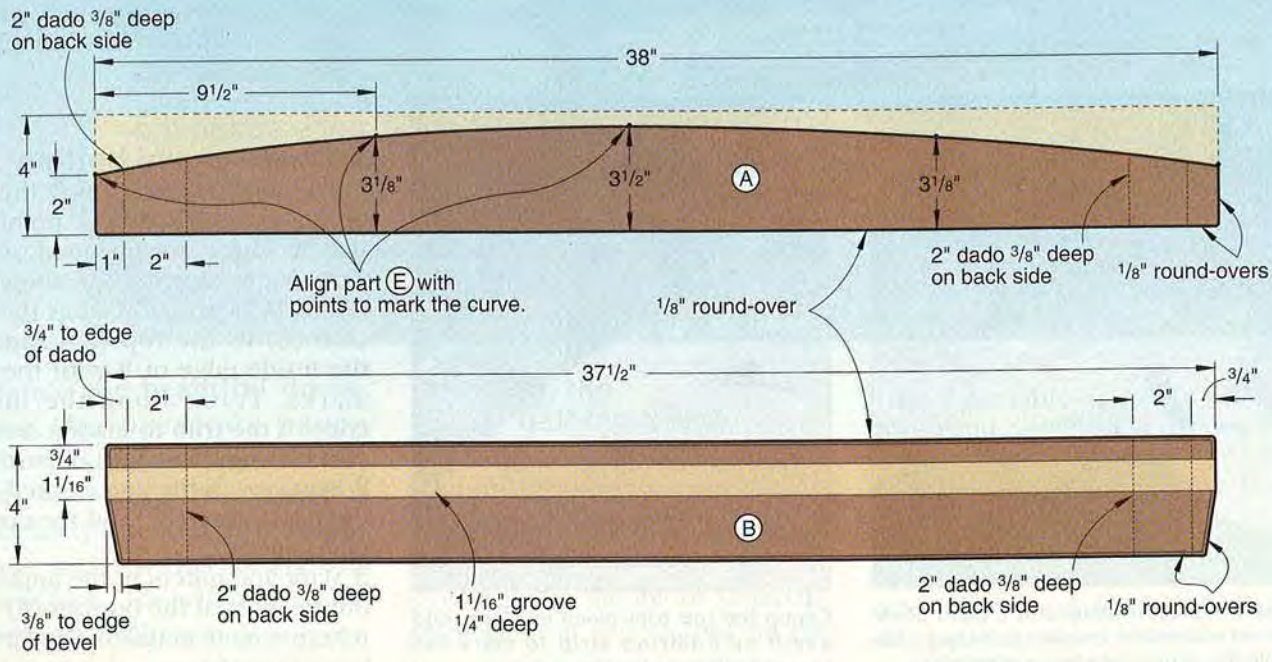
Part	Finished Size T	W	L	Matl.	Qty.
A* top	1 1/16"	3½"	38"	O	1
B bottom	1 1/16"	4"	37½"	O	1
C shelf	1 1/16"	2⅜"	38½"	O	1
D stiles	¾"	2½"	39"	O	2
E top trim	⅜"	1⅜"	39¼"	O	1
F back	¼"	32 1/16"	32 1/16"	P	1

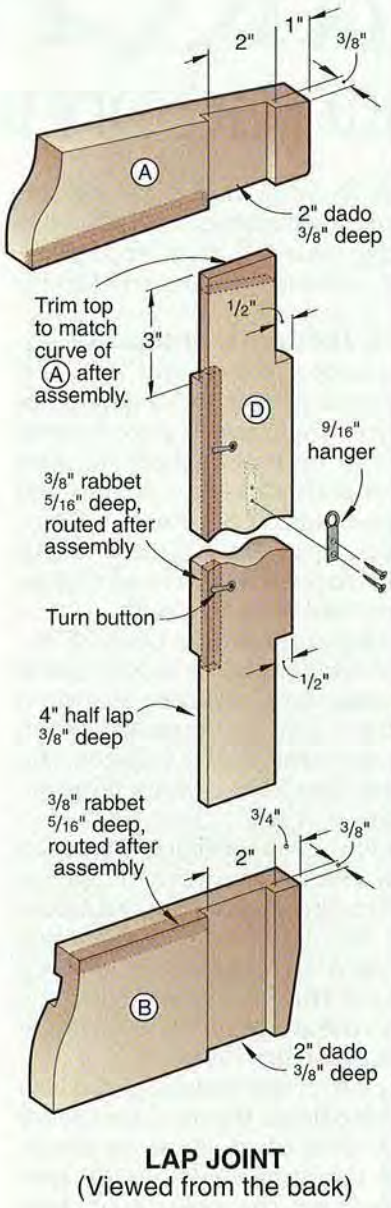
*Cut the part marked with an * oversize in width. Then, trim to finished size according to the how-to instructions.

Materials Key: O–oak, P–plywood

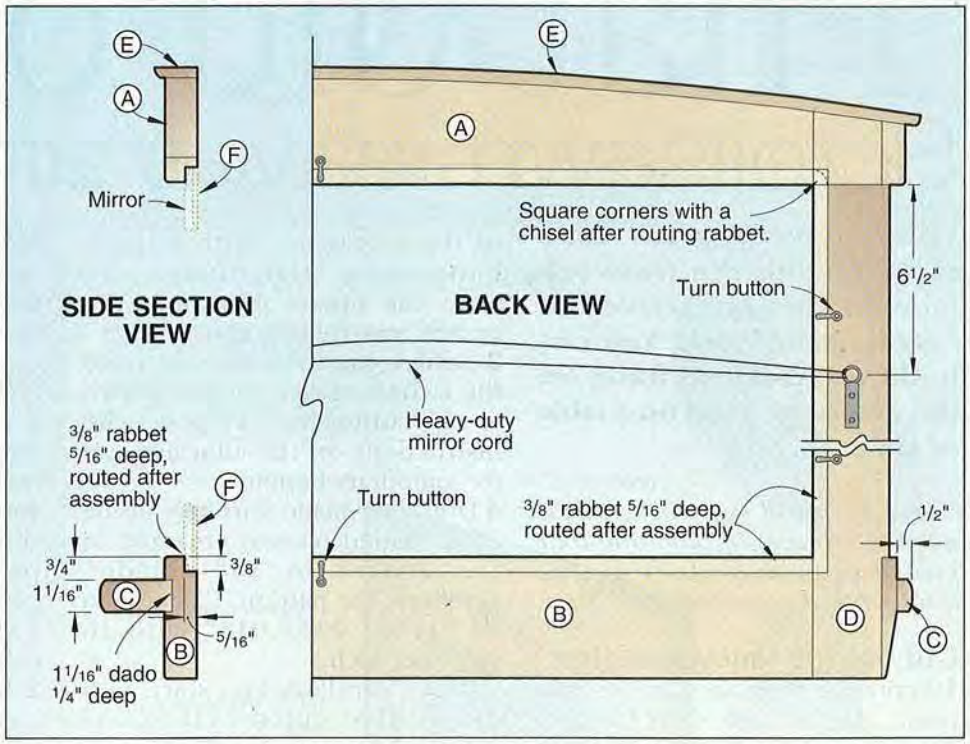
Supplies: #6x½" flathead wood screws, 2–9/16" picture hangers, heavy-duty mirror cord, 2–50 lb. hangers, ¼" mirror, 4 turn buttons, clear finish.

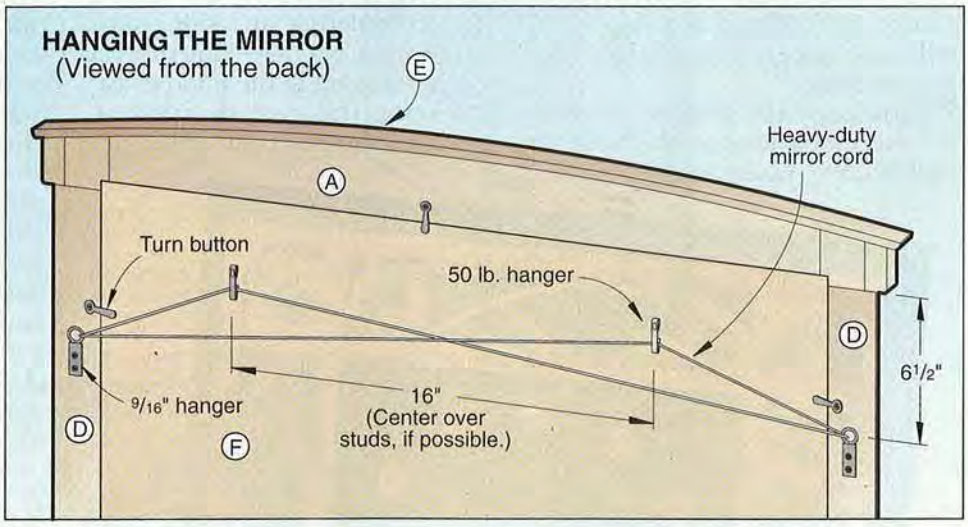
PARTS VIEW





LAP JOINT
(Viewed from the back)





checking for square. Later, trim the protruding top ends of the stiles flush with the top curved edge of the top (A). Sand the areas to remove any saw marks.

3 Glue and clamp the shelf (C) into the groove in the bottom (B), centered from end to end.

4 Glue and clamp the top trim (E) centered to the top edge of the top (A); you'll need to bend part E in place. Keep the overhang on the ends equal. The back edge of E is flush with the back of A.

5 Rout a ⅜" rabbet 5/16" deep along the back side of the mirror frame. Then chisel the round routed corners square.

6 Cut the plywood back (F) to fit into the opening. Have a ¼" mirror cut ⅛" smaller in length and width than the opening. (For an added touch, we had a 1" bevel machined on the edges of our mirror.) The mirror must be cut slightly undersize to allow the frame to expand and contract without cracking the mirror.

7 Finish-sand the mirror frame, and finish it as desired.

8 Position the mirror frame face-down on a flat surface covered with a blanket. Fit the mirror and plywood back (F) in place. Drill pilot holes into the back side of the stiles (D), and screw four turn buttons in place.

9 Drill the pilot holes, and attach the hangers and heavy-duty mirror cord to the mirror frame. See the Hanging the Mirror drawing *above* for reference.

Written by Marlen Kemmet Project Design: Jeff Hayes Illustrations: Roxanne LeMoine; Lorna Johnson Photographs: Marty Baldwin; Hetherington Photography

Print this article

That old oaken

Scrollsawn leaves and acorns

You'll have a great time scrollsawing the fretwork face on this attractive but easy-to-make clock. You can build the clock to hang on the wall or to stand on a table or shelf.

Note: To build the clock, you'll need two pieces of oak, one that measures ¼×8×8" (part A) and another that's ½×8×8" (part B).

Cut out the fancy face first

1 Spray the front face of the thin piece, part A, with clear lacquer. (We sprayed ours with an aerosol can of Deft Wood Finish.) This will help when you remove the pattern later.

2 Photocopy the full-size pattern for the clock face in the *WOOD PATTERNS®* insert in the middle of the magazine. With a sharp knife and a straightedge, cut away the square pattern in the center. Save it for later use.

3 Adhere the fretwork pattern to the lacquered face of part A with spray adhesive. Follow the instructions on the adhesive can for temporary bonding.

4 Drill a 1/16" blade start hole inside each shaded pattern area and in the square in the middle. Scrollsaw the pattern. (We used a #4 blade, .035×.015" with 16 teeth per inch.)

When scrollsawing, start with the smallest cutouts along one side and work up to the largest. After completing one side, move to the next section. Cut out the square opening in the middle last.

5 Leaving the pattern in place, spray on another coat of lacquer. Spray from all angles to coat the scrollsawn edges inside the design. This will help keep paint from wicking into the wood later.

Now, laminate and paint

1 Laminate parts A and B. When you do this, apply the glue sparingly to the back of part A—you want to prevent squeeze-out into the scrollsawn area. Clamp the parts, edges flush, using a ¾×8×8" piece of scrapwood as a clamp pad on part A. After the glue dries, sand the edges flush.

2 Spray on another coat of lacquer, taking care to achieve good coverage on the surface of part B within the square opening. When the lacquer dries, adhere the square part of the clock face pattern to part B.

3 Drill the ⅜" holes for the movement shaft and time markers where indicated. On the back, drill two ⅜" holes where shown. Center a 3" counterbore ¼" deep around the center hole for the movement shaft. (We bored it with a Forstner bit.)

4 Remove the square pattern in the middle of the face, but leave the fretwork pattern in place. Mask the outside edges with tape.

5 Spray on the color coat. (We applied Krylon hunter green enamel.) Spray on several light coats, shooting from various angles to cover the scrollsawn inside edges.

CLOCK
lend country character

6 After the paint dries, peel off the masking tape and the fretwork pattern, as shown *below*. Clean adhesive residue from the face, using a rag dampened with lacquer thinner.

Routing completes the job

1 Rout a ⅜" cove around the outer edge of the face where shown. Chuck a ⅜" cove bit in a table-mounted router to do this.

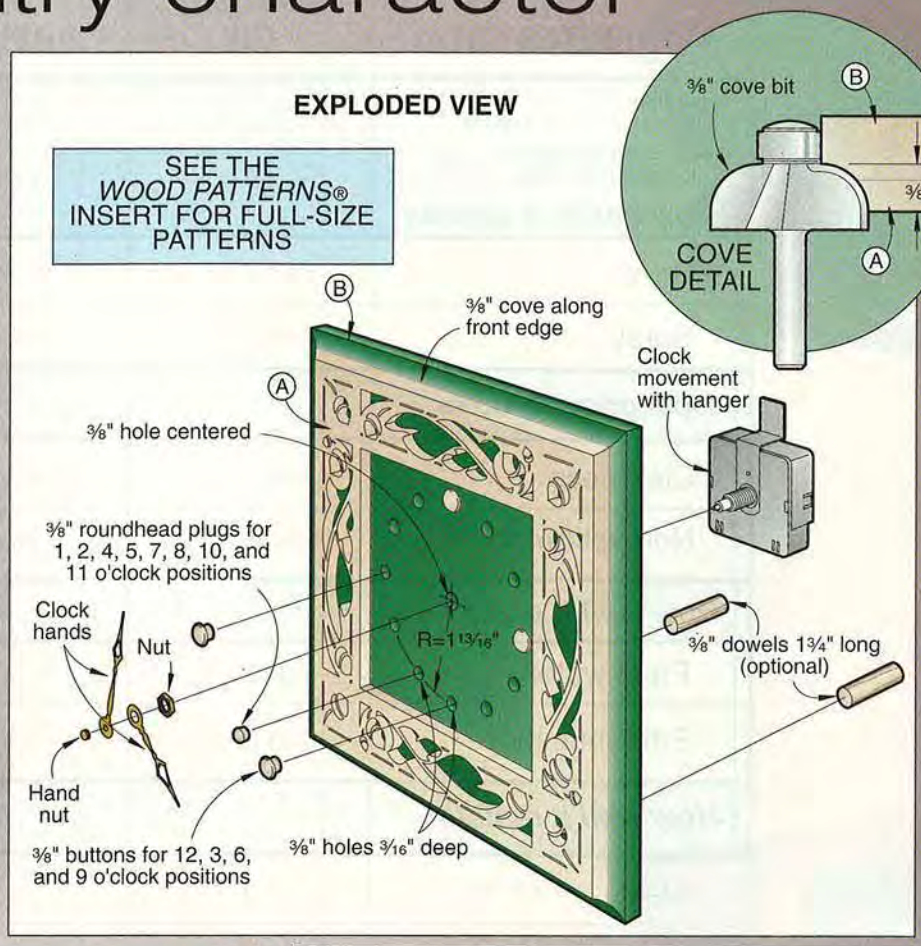
2 Press oak buttons (mushroom plugs) into the holes at the 12, 3, 6, and 9 o'clock positions. Put oak roundhead plugs at the other time marks. (Glue the buttons and plugs into the holes, if necessary.)

3 Finish-sand the fretwork face and the cove. Spray on a coat of lacquer overall, taking care to cover the routed edge. Mask the face to the edge of the cove.

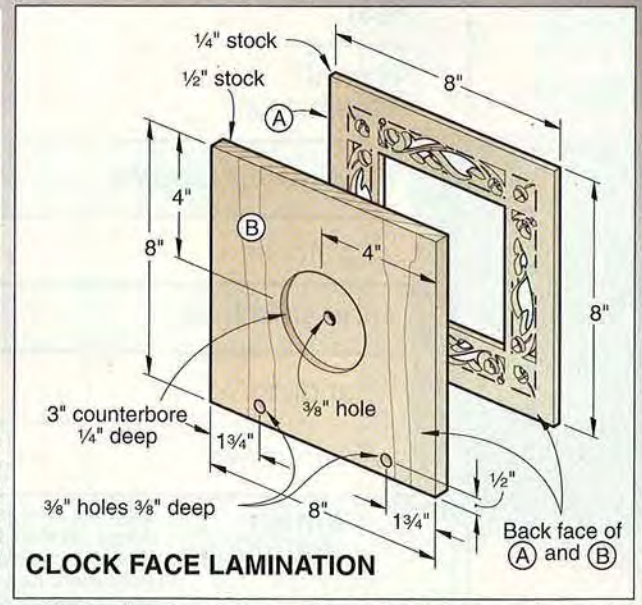
4 Paint the cove and edge. After the paint dries, remove the masking from the face.

5 Install 1¾" lengths of ⅜" dowel rod into the holes on the back to make legs for the tabletop version. Leave them out to make a wall-hung clock.

6 Spray one more coat of lacquer overall, front and back. When dry, install the clock movement and hands. For the wall clock, install the hanging bracket as you put the clock movement in place.



The pattern masks the fretwork for painting after scrollsawing. The pattern is easier to remove after painting if you lacquer the wood surface first.



Buying Guide

Clock movement. Quartz movement (order no. 200620) with gold hands (order no. 200703), $6.95 ppd. in U.S. Schlabaugh and Sons Woodworking, 720 14th St., Kalona, IA 52247. Call 800/346-9663.

Project Design: James R. Downing Illustrations: Kim Downing; Lorna Johnson Photographs: Hetherington Photography

At-a-Glance Guide

Confused by clear finishes? How do you choose the best one for a project? Use this chart to match the properties of the available types of clear finishes to the way you want

ATTRIBUTES	OIL	SHELLAC	LACQUER
Ratings: 0=Worst ★★★★★=Best See finish definitions at bottom of page.			
How easily it applies			
Brush	★★★★★	★★★	★★
Spray	★★★★★	★★★★	★★★★★
How good it looks			
Clearness	★★★ to ★★★★★	★★★ to ★★★★★	★★★★★
Non-yellowing	★★ to ★★★	★ to ★★★★	★★★ to ★★★★
How well it protects			
From water	0 to ★★	★★	★★★
From humidity	0 to ★	★★★★★	★★★
How well it resists			
Wear	0	★★	★★★
Heat	★★★	★	★★
Alcohol/ Chemicals	★★★★	★	★★
How well it repairs			
Scratches	★★★★★	★★★★	★★★★
How safe it is			
Handling	★★ to ★★★★	★★★★	★★
Environment	★★ to ★★★★	★★★★	0

Finish definitions

Oil–Pure linseed and tung, polymerized tung and linseed oils, thinned varnish, varnish and oil.
Alkyd varnish–An economical mixture of resin made from alcohol and acid, oil, and solvent.
Phenolic varnish–An early synthetic plastic resin mixed with oil and solvent.
Polyurethane varnish–A synthetic plastic resin usually mixed with alkyd, oil, and solvent.
Water base–Particles of acrylic or polyurethane suspended in water.

Print this article

to Clear Finishes

your project to look and wear over time. You'll also find out how to best apply each finish and how friendly it is to you and the environment.

VARNISH (ALKYD)	VARNISH (PHENOLIC)	VARNISH (POLY)	WATER BASE
★★★★★	★★★★★	★★★★★	★★★
★★★★	★★★★	★★★★	★★★★
★★★★★	★★★★★	★★★	★★★★
★★	★	★★	★★★★★
★★★★	★★★★	★★★★★	★★★
★★★★	★★★★★	★★★★★	★★★
★★★★	★★★★	★★★★★	★★★★★
★★★★	★★★★	★★★★★	★★
★★★★	★★★★	★★★★★	★★
★★	★★	★	★★★
★★★	★★★	★★★	★★★★
★	★	★	★★★★

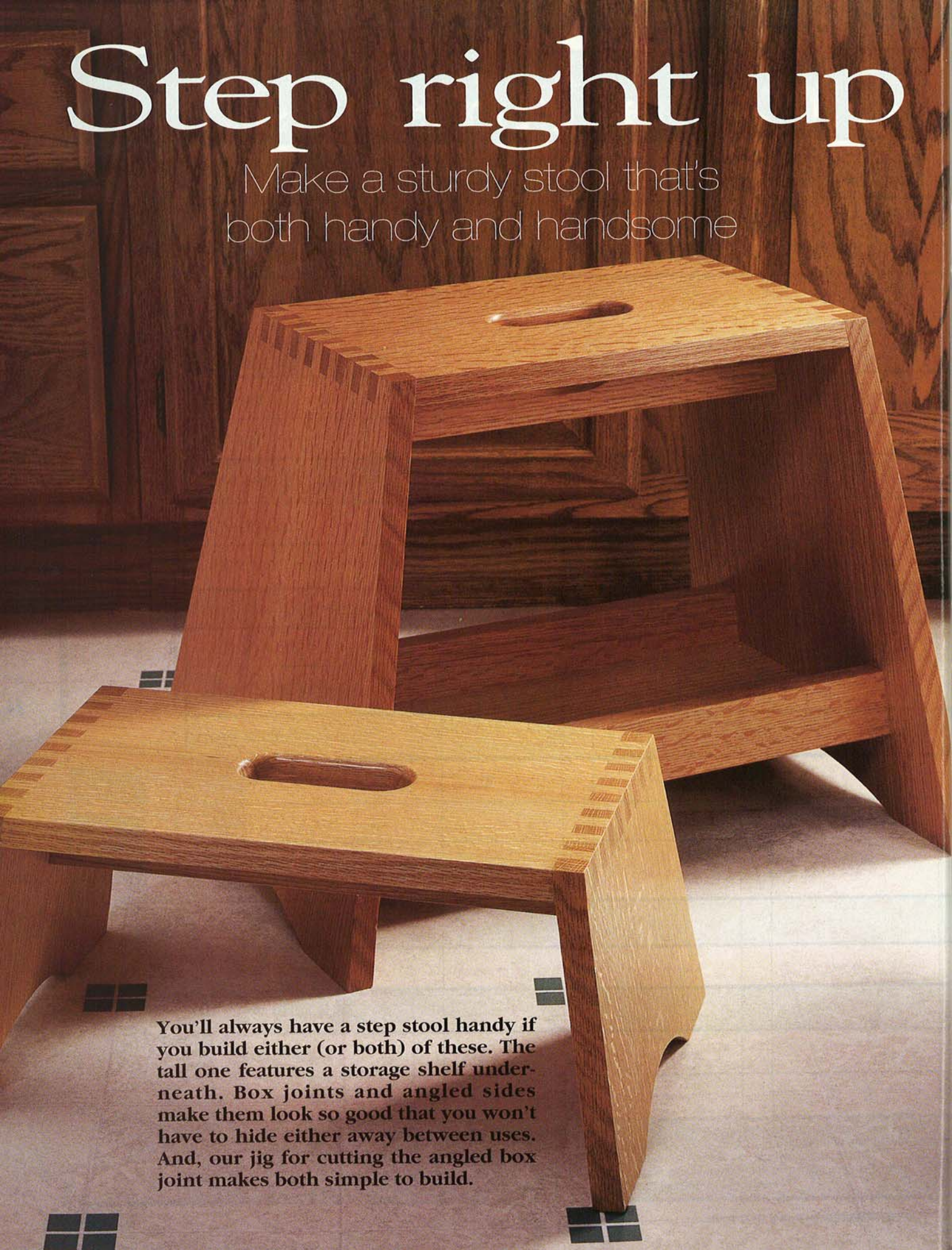
What thins what

Denatured alcohol.....Shellac
Lacquer thinner.....Lacquer, catalized lacquer
Mineral spirits, naptha, turpentine...Wax, oil, varnish
Water.....Water base

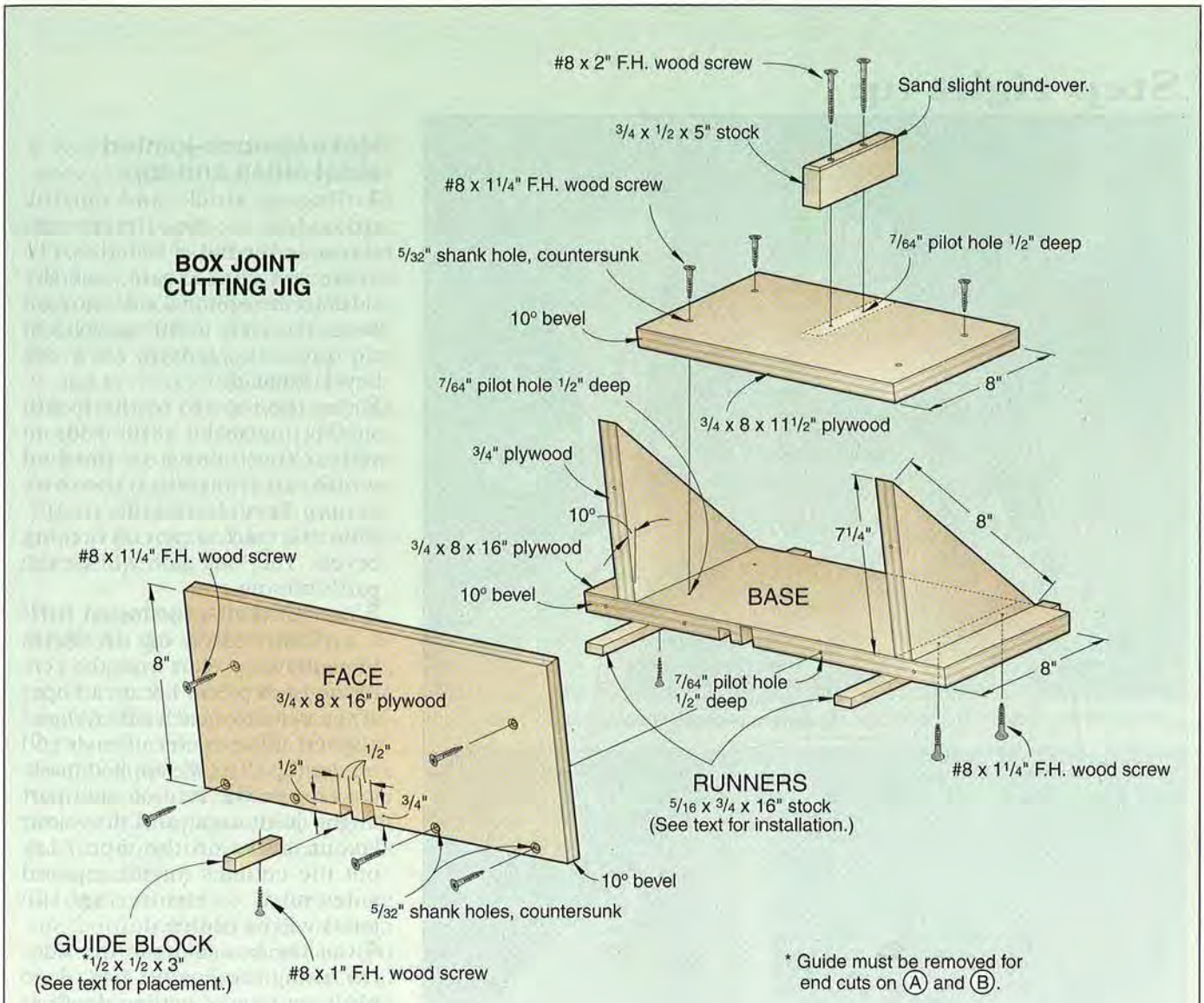
Developed with Bob Flexner, author of *Understanding Wood Finishing*

Step right up

Make a sturdy stool that's both handy and handsome



You'll always have a step stool handy if you build either (or both) of these. The tall one features a storage shelf underneath. Box joints and angled sides make them look so good that you won't have to hide either away between uses. And, our jig for cutting the angled box joint makes both simple to build.



Take the first step: Build the angled box-joint jig

1 Referring to the Box Joint Cutting Jig drawing, saw the parts for the jig to size. Assemble them as shown, except for the runners and guide block.

2 Install a ½" dado blade on your tablesaw, and adjust the cutting depth to ½".

3 To install the guide block, first mark a point on your saw table midway between the miter-gauge slots. Then, mark the midpoint of the jig's width on the face near the bottom edge. Place the jig on the saw table, the face toward the back of the saw. Offset the center mark on the jig 1" to the left of the center mark on the table.

Slide the saw's fence up against the right side of the jig. Holding the jig firmly against the fence, saw a dado 3" into the base. Install the guide block in the dado, extending ¾" beyond the face.

4 Next, install the runners. To do this, slide the tablesaw fence exactly 1" to the right. Then, put a strip of double-faced cloth tape on top of each runner. Place the runners in the miter-gauge slots, taped side up, with a 1/16"-thick shim strip under each one. (Shimming brings the runner tops flush with the table's surface.)

Holding the jig against the fence to keep it square, press the base down to stick the runners to it. Lift the jig without disturbing the runners' positions on the base, and attach the runners with screws where shown.

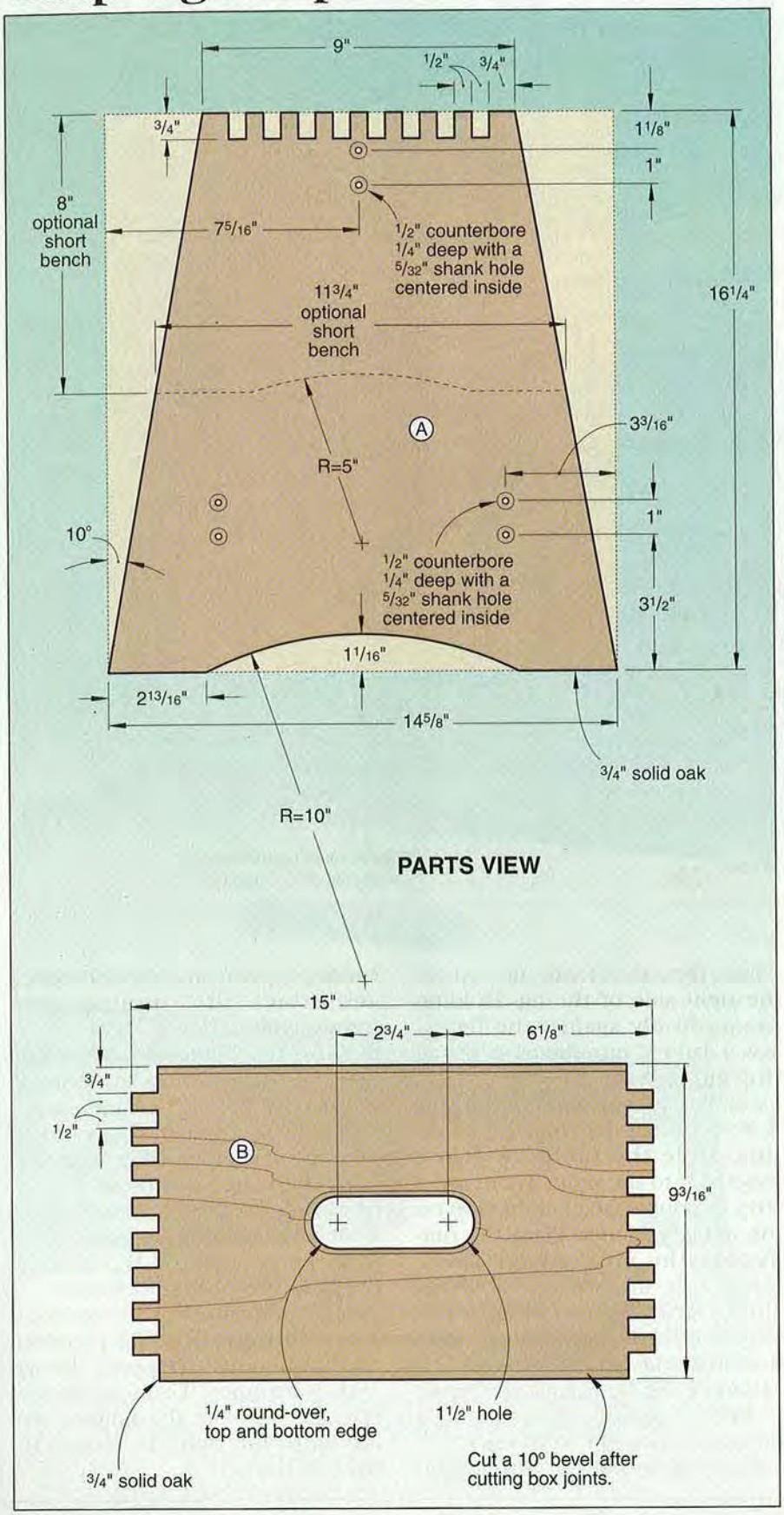
5 Raise the blade to ¾" cutting depth. Cut test joints in ¾"-thick scrapwood to verify finger spacing. Cut at least eight fingers for a good test. When cutting with the jig, clamp the workpiece to the face. To keep the jig from tipping, which would cut an inaccurate joint, press down on the back of the jig as you push it forward.

If the joint doesn't fit together properly, adjust the jig position on the runners by tapping the jig with a hammer. To increase the distance between the fingers, tap the jig to the right; to reduce it, tap it to the left.

Continued

Print this article

Step right up



Make the box-jointed stool sides and top

1 Glue up stock, and cut the sides (A) to the dimensions shown in the Bill of Materials. (To make the short stool, cut the sides to the optional size shown.) Bevel the ends to 10° as you cut the pieces to length. (Saw the bevels parallel.)

2 Cut the top (B) to the length shown, but make it 10" wide to start. (You'll cut it to finished width after sawing the box joints.) Bevel both ends to 10°. (On this part, saw converging bevels. The long side will be the part's bottom.)

3 Lay out the box joints on parts A and B, shown on the Parts View drawing. Start from the center on each piece. Locate a finger at the center of each side (A) and a space at the center of each end on the top (B). (We applied masking tape to the face of each part in the joint area, and drew our layout marks on the tape.) Lay out the cutlines for the tapered sides now, to ensure that the joints will be centered.

4 Cut the box joints in the sides (A), using the jig and a ½" dado blade set to a ¾" cutting depth as shown top left. To start, remove the guide block from the jig. Align the layout marks for the first space on the right with the dado blade. Clamp the workpiece to the jig, then saw the space.

Replace the guide block in the jig. Place the dado you just sawed over the guide pin, clamp the part to the jig face, and make the cut. Saw all the fingers on both sides (A) this way.

5 Cut the mating fingers on both ends of the top (B). Again, remove the guide block to make the first cut on each end, and replace it for subsequent ones.

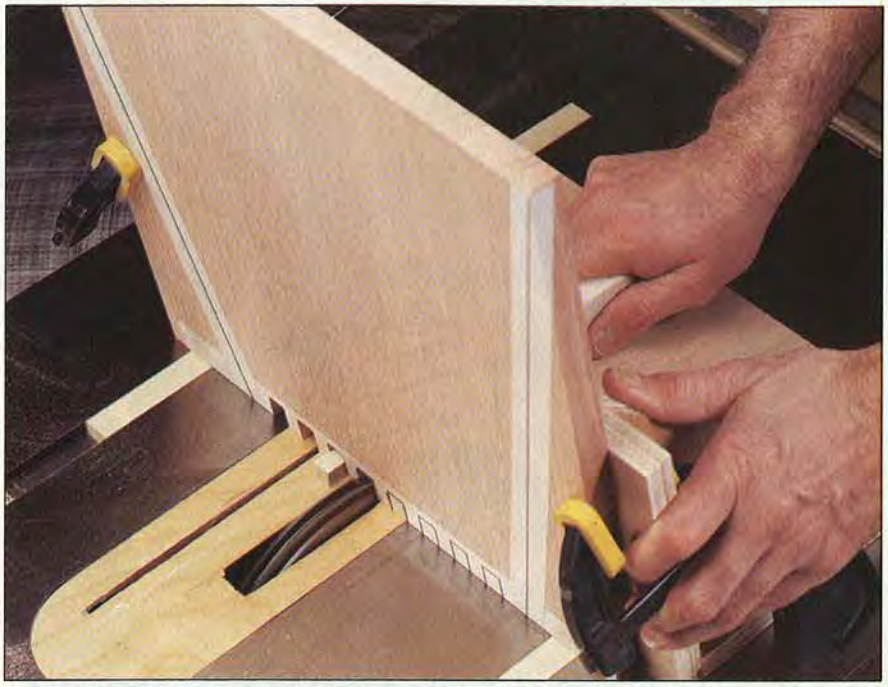
Because of the wider fingers at the outside of the joint, the first and last cut on both ends of the top (B) will be wider than the dado blade. Make these cuts in two passes.

6 Saw the tapered edges on the sides (A). (Save the waste pieces to cut screw-hole plugs from later.) Drill and counterbore the screw holes where shown, and bandsaw the arch that forms the feet. Sand both pieces smooth.
7 Dry-assemble parts A and B. Mark the width and bevel on part B, and bevel-rip it to width.
8 Lay out the oval handle opening in the top (B). Bore two 1½" holes to form the handle ends, and cut between them with a scrollsaw or jigsaw. Rout a ¼" round-over around the top and bottom of the handle opening.

Put together a handy shelf to go underneath

1 Cut parts C, D, and E to size, and bevel the ends. Bandsaw the centered handle notch in part C.
2 Dry-assemble parts A, B, and C to check the fit of C. If the part seems too short, plane or saw a little off the top (notched) edge. If it is too long, trim equal amounts from each end.
3 Form a ⅜" rabbet ¼" deep along the bottom inside edge of each part D. Clamp the spreaders (D) and shelf (E) together, then drill and countersink screw holes from the bottom. Glue and screw the assembly together.
4 Disassemble parts A, B, and C. Apply yellow glue to the box joints, assemble them, and clamp. (Clamps with rubber or soft plastic pads grip better on the angled sides.) After pulling the joints up snugly, remove the clamps. Install part C, drill pilot holes into the ends, and drive in the screws, as shown opposite page.
5 Install the shelf assembly (D/E). Drill pilot holes into the shelf, and drive in the screws.
6 Using a plug cutter, cut 12 screw-hole plugs from the part A waste. Glue the plugs into the counterbores, aligning the grain to make them as inconspicuous as possible. After the glue dries, trim the plugs flush. Sand the joints flush, and finish-sand the stool.

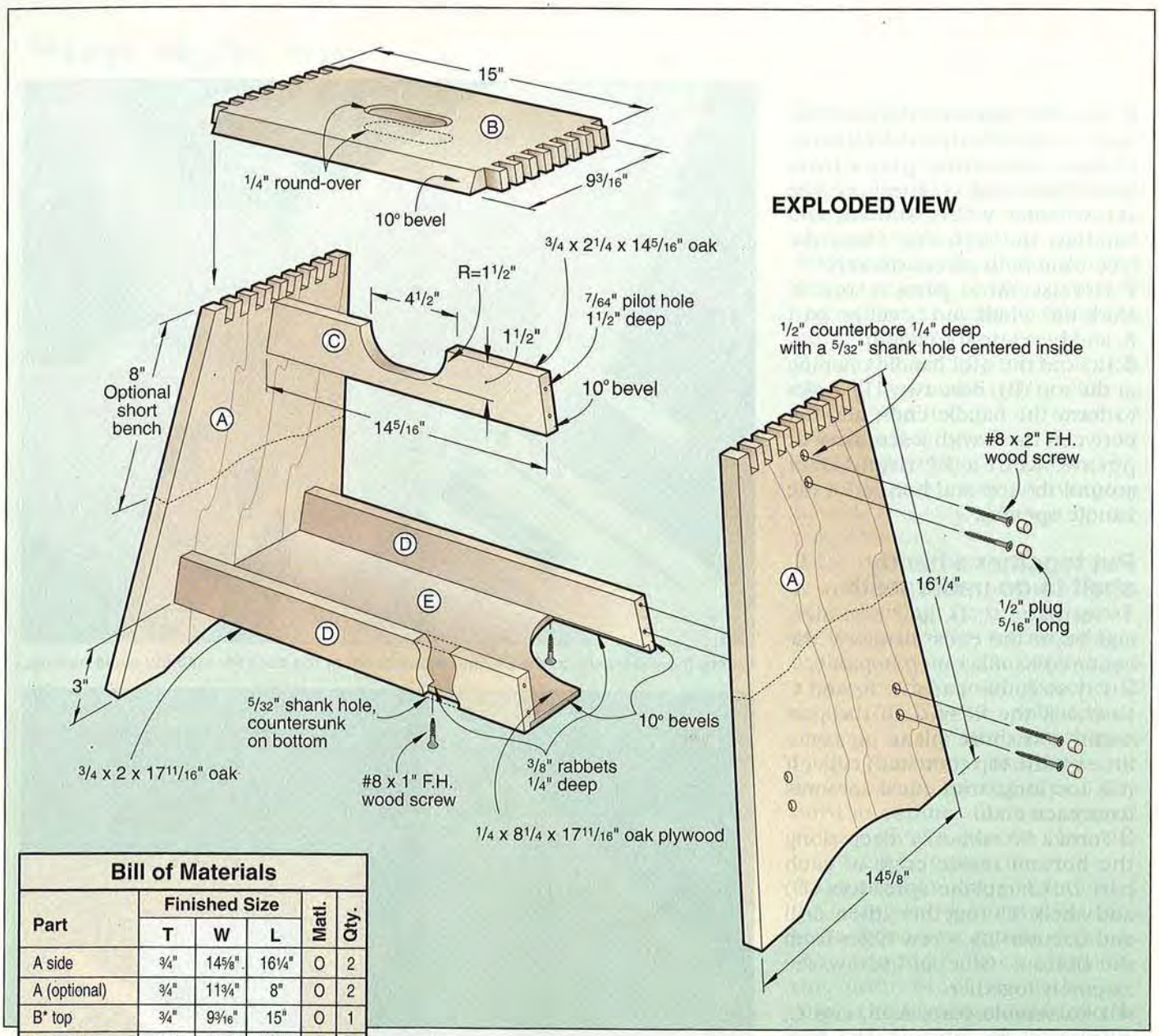
Continued



Clamp the workpiece to the jig, and press down at the back for stability while sawing.

Screw the crossbar (C) into place to clamp the joints at the correct angle.

Step right up



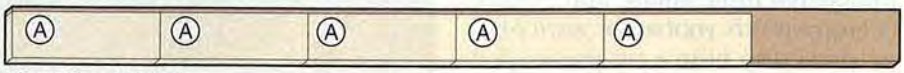
Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A side	¾"	14⅝"	16¼"	O	2
A (optional)	¾"	11¾"	8"	O	2
B* top	¾"	9 3/16"	15"	O	1
C crossbar	¾"	2¼"	14 5/16"	O	1
D spreader	¾"	2"	17 11/16"	O	2
E shelf	¼"	8¼"	17 11/16"	OP	1

*Make wider initially, and trim to finished size in accordance with how-to instructions.

Materials Key: O–oak; OP–oak plywood

Supplies: woodworker's glue; #8x1" and 2" flat-head wood screws; clear finish.



3/4 x 5 1/2 x 96" Oak

CUTTING DIAGRAM

3/4 x 11 1/4" x 60" Oak

Put on a long-lasting finish

1 Wipe off the sanding dust, and spray or brush on a coat of satin polyurethane varnish. Apply a thin coat to prevent runs.

2 Allow the varnish to dry, then sand the stool with 320-grit sandpaper. Dust the surface, and apply another light coat of finish.

3 The end grain on the box-joint fingers absorbs the finish, making the finger ends look duller than the rest of the stool. To avoid that, brush extra finish onto the end grain to build up the coating.

4 Sand the stool once more with 320-grit sandpaper. Then, put on the final coat of finish.

1/4 x 24 x 24" Oak plywood

Project Design: James R. Downing Photographs: Hetherington Photography Illustrations: Roxanne LeMoine; Lorna Johnson

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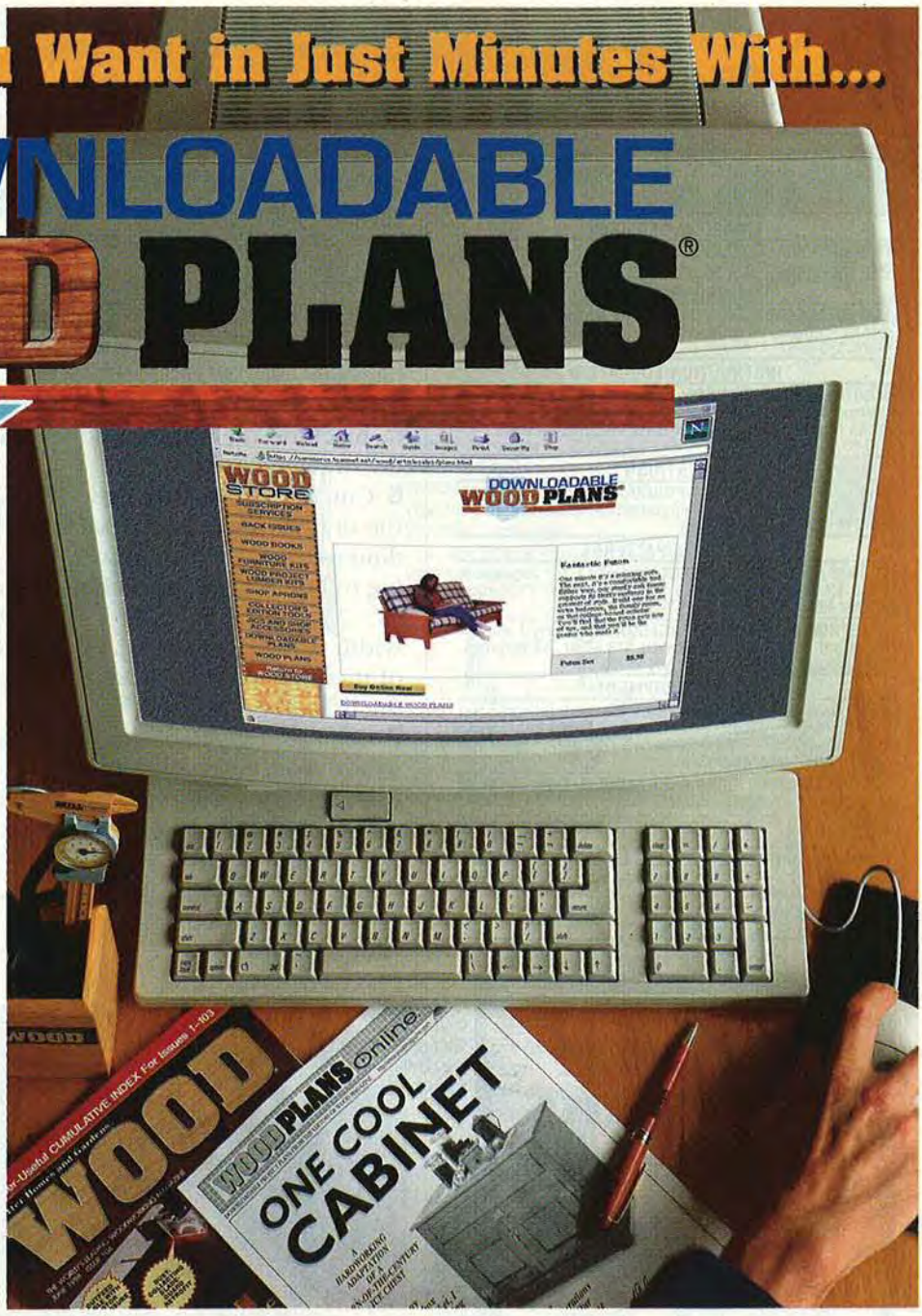

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Dresser and Mirror

Continued from page 67

4 Follow *Step 3* on the drawing on *page 67* to cut a ¼" rabbet ¼" deep along the ends of the drawer backs (V, W, X).

5 Refer to *Step 4* on the drawing to machine the mating dadoes on the drawer sides (S, T, U).

6 Cut the remaining grooves in the drawer fronts and sides where dimensioned on the Drawer drawing to house the plywood bottoms (Y, Z). Make sure the groove width is the same as the thickness of the plywood you'll be using for the drawer bottoms.

7 Cut the drawer bottoms (Y, Z) to size from ¼" plywood.

8 Dry-clamp (using no glue) each drawer together to check the fit. To assemble each drawer, use white glue. It dries more slowly, giving you more working time. Glue one front piece to one side piece. Add a drawer back, slide the bottom in place, and glue the other side in place as shown in *Photo C*. Clamp the assembly together, taking opposing diagonal measurements from the corners to check for square.

Dry-clamp each drawer together first to check the fit. Then, glue and clamp the parts, adding one side piece last.

9 After marking the locations, drill the holes in the drawer fronts to accept the hardware. Be careful to locate the holes consistently from one front to another.

10 To create the look of an equal reveal on the top and bottom of each drawer when it's slid in place in the dresser, rout the bottom of each drawer front with a 15° chamfer bit (we used a CMT 857.503.11). You also could sand or plane the 15° chamfer along the bottom edge of each drawer front. See the Drawer drawing for reference. The key is to keep the chamfered edge straight.

11 Cut the drawer stops (AA) to size, and drill a countersunk mounting hole in each.

Now finish your showpiece dresser

1 Measure the opening, and rip and crosscut the back (BB) to size from ¼" plywood.

2 Finish-sand the carcase, drawers, and top. Finish the cabinet as desired. See the country-finishing article on *page 72* of the December 1998 issue of *WOOD* magazine for our country finish. Or stain the cabinet and drawer fronts and protect them with a clear finish for the look of the dresser on *page 64*.

3 Attach the self-adhesive, self-lubricating nylon tape (see the Buying Guide for our source) where shown on the Exploded View drawing.

4 Slide the drawers into their respective openings, and screw the stops in place.

5 Mark the screw locations, drill the countersunk holes, and screw the back (BB) in place.

Written by Marlen Kemmet
Project Design: Jeff Hayes
Illustrations: Roxanne LeMoine; Lorna Johnson
Photographs: Hetherington Photography

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with Bearing

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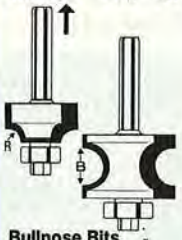
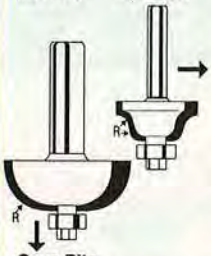
WL-1041	1/8"	$9.
WL-1042	3/16"	$9.
WL-1043	1/4"	$9.
WL-1044	5/16"	$10.
WL-1045	3/8"	$11.
WL-1046	1/2"	$13.
1/2" Shank		
WL-1049	1/8"	$9.
WL-1042-5	3/16"	$9.
WL-1050	1/4"	$9.
WL-1044-5	5/16"	$10.
WL-1051	3/8"	$12.
WL-1052	1/2"	$13.
WL-1053	5/8"	$16.
WL-1054	3/4"	$18.
WL-1055	7/8"	$25.
WL-1056	1"	$27.
WL-1057	1-1/8"	$30.
WL-1058	1-1/4"	$30.



Bullnose Bits
with Bearing
1/4" Shank • Bead Opening

WL-1100	1/4"	$12.
WL-1101	3/8"	$14.
WL-1102	1/2"	$16.
WL-1103	5/8"	$18.
WL-1104	3/4"	$19.
1/2" Shank		
WL-1110	1/4"	$12.
WL-1111	3/8"	$14.
WL-1112	1/2"	$16.
WL-1113	5/8"	$18.
WL-1114	3/4"	$19.
WL-1115	1"	$22.
WL-1116	1-1/8"	$25.
WL-1117	1-1/4"	$28.
WL-1118	1-1/2"	$32.



Cove Bits
1/4" Shank • Radius

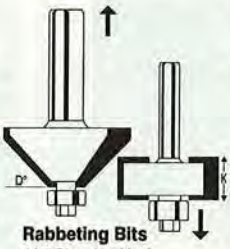
WL-1159	1/8"	$10.
WL-1160	3/16"	$10.
WL-1161	1/4"	$11.
WL-1162	3/8"	$13.
WL-1163	1/2"	$14.

Cove Bits (continued)
1/2" Shank

WL-1169	1/8"	$10.
WL-1170	1/4"	$11.
WL-1171	3/8"	$13.
WL-1172	1/2"	$14.
WL-1173	5/8"	$18.
WL-1174	3/4"	$20.

Chamfer Bits
1/4" Shank • Degree

WL-1180	15°	$10.
WL-1181	25°	$10.
WL-1182	45°	$12.
WL-1183	45°	$14.
(for up to 3/4" material)		
1/2" Shank		
WL-1184	45°	$10.
WL-1185	11-1/2°	$12.
WL-1186	15°	$12.
WL-1187	22-1/2°	$12.
WL-1188	30°	$14.
WL-1189	45°	$15.
WL-1190	45°	$22.
(for up to 1-1/4" material)		



Rabbeting Bits
1/4" Shank • Kerf

WL-1220	1/2"	$11.
WL-1220-2	1/16"	$10.
WL-1220-3	1/8"	$10.
WL-1220-4	1/4"	$10.
WL-1220-5	3/8"	$10.
1/2" Shank		
WL-1225	1/2"	$11.
WL-1225-2	1/16"	$10.
WL-1225-3	1/8"	$10.
WL-1225-4	1/4"	$10.
WL-1225-5	3/8"	$10.
WL-1225-6	3/4"	$12.

Roman Ogee Bits
1/4" Shank • Radius

WL-1230	5/32"	$13.
WL-1231	1/4"	$15.
1/2" Shank		
WL-1235	5/32"	$13.
WL-1236	1/4"	$15.

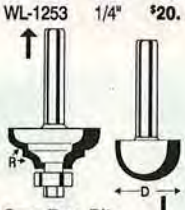
Double Roman Ogee
1/4" Shank • Radius

WL-1240	5/32"	$18.
WL-1241	1/4"	$20.
1/2" Shank		
WL-1245	5/32"	$18.
WL-1246	1/4"	$20.

Ask about our unique "Does It All" ROUTER TABLE

Classical Ogee Bits
1/4" Shank • Radius

WL-1250	5/32"	$18.
WL-1251	1/4"	$20.
1/2" Shank		
WL-1252	5/32"	$18.
WL-1253	1/4"	$20.

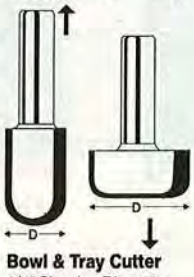


Core Box Bits
1/4" Shank • Diameter

WL-1370	1/8"	$10.
WL-1371	1/4"	$8.
WL-1371-1	3/8"	$9.
WL-1372	1/2"	$10.
WL-1373	3/4"	$12.

Roundnose/Core Box
1/2" Shank • Diameter

WL-1375	1/4"	$8.
WL-1375-1	3/8"	$11.
WL-1376	1/2"	$12.
WL-1377	3/4"	$14.
WL-1378	1"	$16.

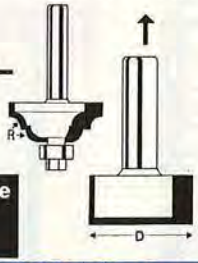


Bowl & Tray Cutter
1/4" Shank • Diameter

WL-1380	7/16"	$13.
WL-1381	3/4"	$15.
1/2" Shank		
WL-1385	3/4"	$15.
WL-1386	1-1/4"	$18.

Dado & Planer Bit
1/4" Shank • Diameter

WL-1390	3/4"	$12.
1/2" Shank		
WL-1391	3/4"	$12.
WL-1392	1"	$14.
WL-1393	1-1/4"	$15.
WL-1394	1-1/2"	$16.
WL-1394-1	2"	$28.



Pattern Cutting Bit
1/4" Shank • Diameter

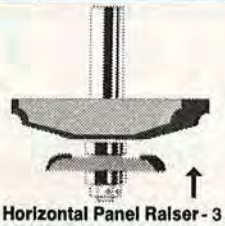
WL-1400	1/2"	$12.
WL-1401	5/8"	$12.
WL-1402	3/4"	$12.
1/2" Shank		
WL-1405	3/4"	$15.
WL-1406	1-1/8"	$16.

Straight Bits
1/4" Shank • Diameter

WL-1001	1/8"	$10.
WL-1002	3/16"	$5
WL-1002-5.5	5.5mm	$5.
(for undersized 1/4" plywood)		
WL-1003	1/4"	$5.
WL-1004	5/16"	$5.
WL-1005	3/8"	$5.
WL-1006	15/32"	$5.
(for undersized 1/2" plywood)		
WL-1007	1/2"	$6.
WL-1008	9/16"	$6.
WL-1009	5/8"	$7.
WL-1010	23/32"	$8.
(for undersized 3/4" plywood)		
WL-1011	3/4"	$9.
WL-1012	1"	$10.
1/2" Shank		
WL-1020	15/64"	$5.
(for undersized 1/4" plywood)		
WL-1021	1/4"	$5.
WL-1019	5/16"	$5.
WL-1022	3/8"	$5.
WL-1023	7/16"	$5.
WL-1024	15/32"	$5.
(for undersized 1/2" plywood)		
WL-1025	1/2"	$6.
WL-1027	5/8"	$8.
WL-1028	23/32"	$8.
(for undersized 3/4" plywood)		
WL-1029	3/4"	$9.

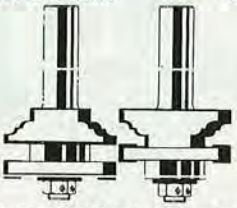
Corner Lock Mitres
For up to 5/8" material
WL-1420-2 1/4" shank $25.
For 1/2" to 3/4" material
WL-1420-1 1/2" shank $30.
For material 3/4" to 1-1/4"
WL-1420 1/2" shank $38.

For the Shaper Lock Mitre WL-1581 $40.



Horizontal Panel Raiser - 3 1/2" Dia. with Undercutter • 1/2" Shank

WL-1346	Ogee	$49.
WL-1347	Traditional	$49.
WL-1348	Convex (Cove)	$49.
WL-1359	12° Facecut with Quarter Round	$49.
WL-1363	Wave	$49.

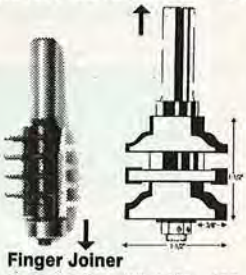


2-piece Rail & Stile Cutter Sets

1/2" Shank		Set
WL-1360	Ogee Profile	$59.
WL-1361	Roundover	$59.
WL-1362	Cove & Bead	$59.

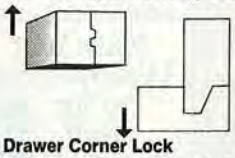
1-piece Rail & Stile Cutter Sets
Just raise the cutter to make the matching cut. No changing or reversing.
1/2" Shank

WL-1365	Ogee Profile	$49.
WL-1366	Roundover	$49.
WL-1367	Cove & Bead	$49.
WL-1368	Wedge	$49.
WL-1374	Dbl Roundover	$49.



Finger Joiner Router Bit WL-1429 $39.
For the Shaper WL-1580 $89.

Reversible Glue Joint
WL-1430 1-3/4" Diam $35.
For the Shaper WL-1706 $35.



Drawer Corner Lock
Makes drawer side separation virtually impossible
1/2" Shank
WL-1435 For 1/2" material $30.

SHAPER CUTTERS
3/4" BORE

Corner Round

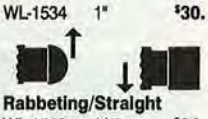
WL-1509	1/8"	$22.
WL-1510	1/4"	$24.
WL-1511	3/8"	$26.
WL-1512	1/2"	$26.
WL-1513	3/4"	$30.
WL-1514	1"	$32.
WL-1515	1-1/4"	$38.

Bead

WL-1520	1/4"	$24.
WL-1521	3/8"	$26.
WL-1522	1/2"	$26.
WL-1523	3/4"	$28.
WL-1524	1"	$30.

Flute

WL-1530	1/4"	$24.
WL-1531	3/8"	$26.
WL-1532	1/2"	$26.
WL-1533	3/4"	$28.
WL-1534	1"	$30.



Rabbeting/Straight

WL-1540	1/4"	$24.
WL-1541	3/8"	$26.
WL-1542	1/2"	$26.
WL-1543	3/4"	$28.
WL-1544	1"	$30.
WL-1545	1-1/2"	$32.
WL-1546	2"	$48.

WL-1500 WL-1501 WL-1502 WL-1503

SHAPER CUTTERS 3/4" BORE
1-piece Rail & Stile
Just raise the cutter to make the matching cut. No changing or reversing.

WL-1500	Roman Ogee	$89.
WL-1501	Roundover	$89.
WL-1502	Cove & Bead	$89.
WL-1503	Dbl Roundover	$89.

Panel Raisers (Shaper Cutter)
3/4" Bore

WL-1600	Ogee	$59.
WL-1601	15° Facecut	$59.
WL-1602	18° Traditional	$59.
WL-1603	Convex (Cove)	$59.
WL-1604	12° Facecut with Quarter Round	$59.
WL-1605	Wave	$59.

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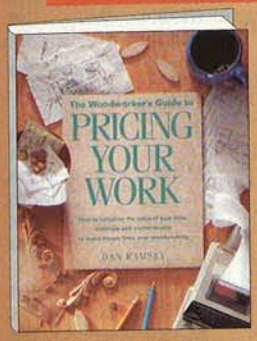

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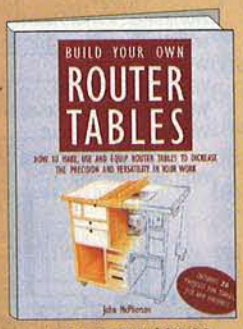

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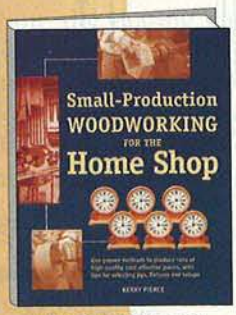

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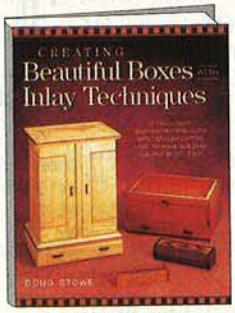

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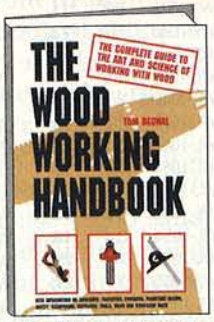

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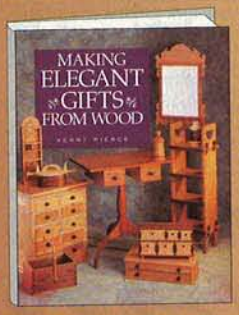

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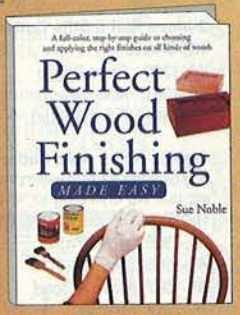

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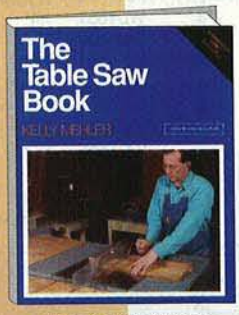

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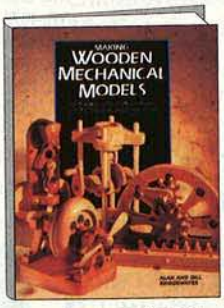

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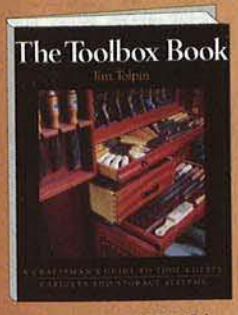

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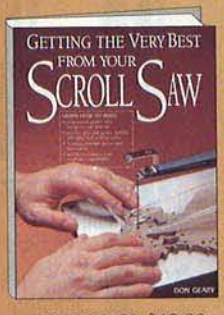

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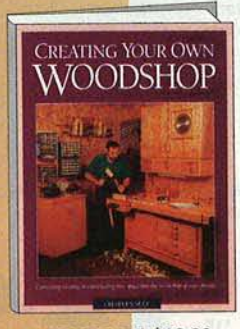

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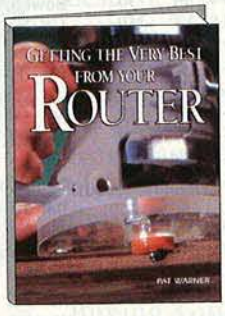

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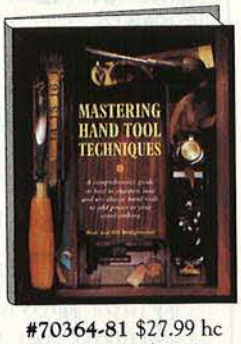

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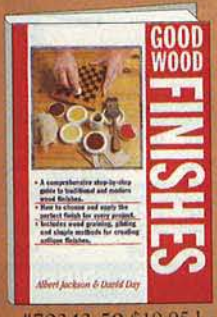

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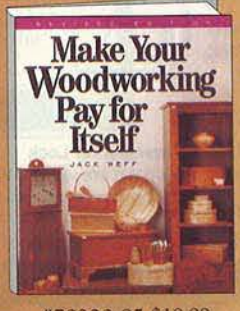

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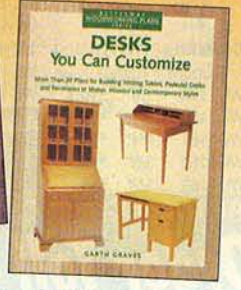

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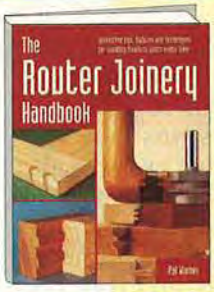

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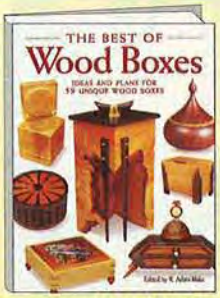

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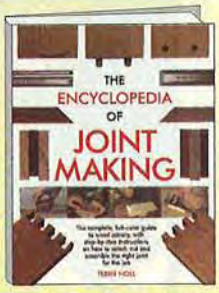

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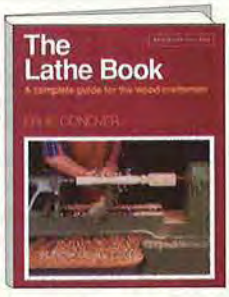

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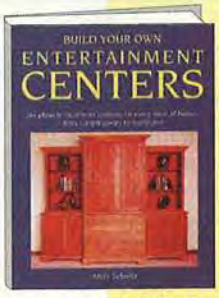

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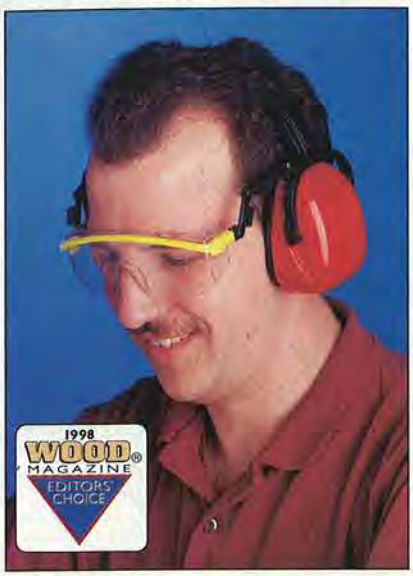
Mail today to: **WOODWORKER'S BOOK CLUB** • P.O. Box 12171 • Cincinnati, Ohio 45212-0171

WD11

For eyes and ears, the Opti-Muff has you covered



I know full well that I should wear my safety glasses *and* hearing protection when I work with power tools. But earmuff-type protectors grind the bows of the safety glasses into my head, so I end up choosing between protecting my eyes *or* my ears. No more—the Opti-Muff protects them both.

To pull off this nifty trick, the Opti-Muff has safety lenses attached to the muffs by means of adjustable bows. These bows position the lenses to protect your eyes regardless of the size or shape of your face. I found I could easily flip the lenses out of the way when I needed to, while still protecting my ears. And, with its 26 decibel noise-reduction rating, the Opti-Muff protects your ears while still letting you sense the load on a power tool's motor.

If you already wear eyeglasses, get the model that fits over your prescription glasses. Because of the way they fold, they take up no more space in your shop than ordinary muffs.

—Tested by Dave Henderson

PRODUCT SCORECARD

Opti-Muff Stock #128124

Performance	★ ★ ★ ★ ★
Price	$34.99 plus $6.99 for shipping & handling
Value	★ ★ ★ ★ ★

Woodcraft Supply Corp. Call 800/225-1153, or www.woodcraft.com.

These jigsaw blades stand by you through thick and thin

It seems like whenever I want to cut wood with my jigsaw, it has the metal-cutting blade in it. Then it seems I can never find the blade with the right tooth count for the thickness of wood I want to cut, so I have to make do with the wrong size blade. The folks at Bosch have created a jigsaw blade, called the Progressor T345XF, that cuts metal as well as wood, and thick stock as well as thin.

The unique Progressor blade has more teeth per inch (tpi) as you get closer to the shank. So, when cutting thin wood or sheet metal, the blade cuts with the finer teeth, 12 tpi. When cutting thick stock, the same blade cuts with a more aggressive 6 tpi.

And cut it does. I started my test by cutting curves in a pressure-treated 4×4, then in ¾" oak. The blade easily followed even the tightest curves. Next, I sliced into a pine 2×6 loaded with framing nails, and the blade effortlessly buzzed through even the nails. Finally, I cut through aluminum tubing and ⅛" steel plate. In fact, I made a dozen cuts through the steel plate with the Progressor and each cut went as fast as the first. After putting the blade through everything I could find in the shop, I did discover some minor tooth damage, but the blade still cut like new.

One caveat: The blade's wide set (the alternating left and right bend of the teeth) helps the teeth cut aggressively, but also contribute to slightly rough sawn surfaces. It also tends to tear out the top of the cut more than a blade with a less radical set. Make a test cut first to see if the smoothness of the final cut will be acceptable.

—Tested by Bob McFarlin

PRODUCT SCORECARD

Progressor T345XF Jigsaw Blades

Performance	★ ★ ★ ★ ★
Price	about $16 for five blades
Value	★ ★ ★ ★ ★

S-B Power Tool Company, 4300 W. Peterson Ave., Chicago, IL 60646. Call 773-286-7330.

Continued on page 90

FORREST'S BUY ONE & SAVE - BUY MORE & SAVE MORE SALE

THRU 1/30/99

Buy any sawblade or dado in this ad and save **10%** off the sale price! Buy additional sawblade(s) or dado(s) and save even more! **15%-20%!**

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144 pages full of photos! Checklists to help you keep every power tool in your shop working perfectly. A find-it-fast trouble-shooting chart tells you how to identify and fix problems. Easy-to-follow photo sequences show you how to get exact alignment every time.

Published by Popular Woodworking Author – Sal Maccarone

OR 300 Great Shop Tips or Forrest Logo cap FREE with any saw blade or Dado listed & purchased from this ad. You must mention you saw this offer in WOOD® Magazine, when ordering.

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ORDER NOW SUPPLIES ARE LIMITED.

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FREE $45 in sharpening coupons with each order placed by 1/30/99

Mention Wood® Magazine to receive discount and free coupons and free shipping
Coupons valid thru 12/31/2000 and good on all makes of carbide blade and dado set sharpening.

WOODWORKER II— 6" – 7 1/4" – 14"

With this one ALL PURPOSE blade you can RIP & CROSSCUT 1"–2" ROCKHARDS and SOFTWOODS resulting in a **SMOOTH AS SANDED** surface. PLY-VENEERS of OAK and BIRCH will crosscut with NO BOTTOM SPLINTER at moderate feed rates.

- DOUBLE HARD and 40% STRONGER C-4 CARBIDE
- Ends blade changing
- Ends scratchy saw cuts
- Ends second-step finishing
- Ends cutting 1/16" oversize to allow for RESURFACING
- **BUY AND SHARPEN 1 BLADE INSTEAD OF 3**

5/8" holes, boring thru 1-1/4" add $7.50. Larger at Time Basis —Shipping $4.50

WOODWORKER II	LIST	SALE	10%	20%
14"X40TX1"	$215	$149	$134	$119
14"X30TX1"	$195	$139	$125	$111
12"X40TX1"	$183	$129	$116	$103
12"X30TX1"	$162	$119	$107	$ 95
10"X40TX1/8" or 3/32"	$156	$119	$107	$ 95
30T 1/8" or 3/32"	$135	$ 99	$ 89	$ 79
9"X40T	$146	$109	$ 98	$ 87
30T	$125	$ 99	$ 89	$ 79
*8-1/4"X40TX 3/32"	$136	$ 99	$ 89	$ 79
8"X40T 3/32"	$136	$ 99	$ 89	$ 79
30T	$115	$ 89	$ 80	$ 71
7-1/4"X30T 3/32"	$112	$ 69	$ 62	$ 55
**6"x40T 3/32"	$136	$ 89	$ 80	$ 71

*NEW for Sears & Makita Table Saws **New For Saw Boss

In Stock Blades made for Special Uses:
• Gang Saws • Panel & Scorer • Picture Frames (Miter-Master)
• Solid Surface • Thin Rim • Plastic/Acrylic (No-Melt)
Also made to order Blades available within 3 weeks, at competitive prices!

CHOPMASTER FOR SLIDING COMPOUNDS & MITER SAWS

New specs, 5° Neg. Pts. & flat, runs out less than .002 for perfect, tight, smooth, splinter-free miter joints.

TAKE EXTRA 10% – 20% OFF COMBO SALE!

NEW SIZES AVAILABLE	LIST	SALE
Delta Sidekick 6-1/2"x40Tx5/8"	$149	$ 89
Sears 8-1/4" & Delta 8-1/4"x60Tx5/8"	$170	$ 99
Hitachi 8-1/2"x60Tx5/8"	$179	$109
DeWalt 8-1/2" & Ryobi 8-1/2"x60Tx5/8"	$179	$109
Delta 9"x80Tx5/8"	$204	$119
Ryobi–Makita & all 10"x80Tx5/8"	$207	$129
DeWalt, Makita, B&D, Hitachi 12"x80Tx1"	$229	$139
Ryobi–Makita 14"x100Tx1"	$266	$179
Hitachi 15"x100Tx1"	$277	$189

For good general purpose cuts use Woodworker II 30T & 40T or Woodworker I. Use small stiffener where possible.

THE ONE BLADE THAT LEAVES A SMOOTH-AS-SANDED SURFACE!

SAVE ANOTHER **$45 to $90** AFTER USING 9 – $5.00 SHARPENING COUPONS USE 1 PER BLADE OR DADO

WOODWORKER I – CROSSCUT — 7 1/4" – 14"

For TABLE and RADIAL SAW – 10% to 20%

NON-SPLINTERING PLYS

	LIST	SALE
14"x60Tx1"	$224	$159
12"x60Tx1" or 5/8" 1/8"K	$198	$139
10"x60Tx5/8" 3/32"K	$162	$129
8-1/4"X60T	$150	$109
8"X60T	$150	$109
7-1/4"X60T	$150	$109

OTHER SIZES AVAILABLE – 7 1/4" – 14"

DURALINE HI-A/T FOR TABLE & RADIAL SAWS

PORTABLE & PANEL SAWS

5/8" HOLES. Boring up to 1-1/4" $7.50 extra. Larger holes–time basis. Shipping $4.50.

TAKE 10% TO 20% MORE OFF THESE PRICES

Faster feed rates & absolute splinter control. Stops splintering on OAK/BIRCH PLY VENEERS & MELAMINE

SIZES AVAILABLE	LIST	SALE
7-1/4" x 60T x 3/32" K	$149	$129
8" x 80T x 1/8" & 3/32" K	$202	$169
220mm x 80T x 1/8" x 30mm	---	$167
9" x 80T x 1/8" & 3/32" K	$207	$179
10" x 80T x 1/8" & 3/32" K	$207	$159
12" x 80T x 1-1/8"K	$212	$181

SIZES AVAILABLE	LIST	SALE
300mm x 100T x 1/8" x 30mm	---	$197
12" x 100T x 1-1/8"K	$253	$215
14" x 80T x 1"	$232	$197
14" x 100T x 1"	$266	$226
16" x 80T x 1"	$262	$223
16" x 100T x 1"	$294	$243

Above bore standard.

SPECIAL COMBO SALE EXTRA 10%-20% OFF

CARBIDE IS THE HARDEST OF THE C-4 GRADES AND 40% STRONGER, NOT WEAKER! FOR 50% TO 300% LONGER LIFE.

Standard C-2 Carbide (below, left) and FORREST **still sharp** Oxidation and Corrosion Resistant Sub-Micron C-4 Carbide (below, right). Each shown after cutting 3,500 feet of MDF. Similar results obtained cutting particle board, melamine, and plywood.

STILL SHARP AFTER 3,500 FEET OF CUTTING!

$21 VALUE — **FREE 10" ORANGE PLASTIC BLADE RUNNER–CARRIER!** SHIPPED WITH 6", 8" & 10" DADO SETS. HOLDS UP TO 10 BLADES, 5 PER SIDE ON CENTER BOLT OR DADOS.

DELUXE DADO-KING!

AS LOW AS $184 NET AFTER USING SHARPENING COUPONS

WORLD'S NO. 1 DADO - NO CHIP ON PLYS & MELAMINE

C-4 Carbide Tips — 4 on each chipper with special negative face hooks. Shims & 3/32" Chipper. Cuts 1/8" to 29/32" wide!!

	LIST	SALE	10%	15%
6" D. 5/8" Bore NEW	$299	$269	$242	$229
8" D. 5/8" Bore	$321	$289	$260	$245
10" D. 5/8" & 1" Bore	$389	$349	$314	$297
12" D. 1" Bore	$499	$449	$404	$382

(Bore up to 1-1/4" Add $25 — Plus $5.50 S&H)

CUTTING PROBLEMS?

Call the factory for *FREE* technical help!!
1-800-733-7111
973-473-5236

FLASH NEWS!!

OUR $79 - $89 30T & 40T OUTPERFORMED (E-EXCELLENT) 23 other 40T & 50T premium blades both foreign & domestic on Ply, Melamine, MDF and Oak/Rip!

Editors' Choice and Top Rating over 18 competing combo saw blades!
"The 10"x40T earns our Editors' Choice award for the best performance, regardless of price. The 10"x40T produced super-smooth ripped edges in ¾ in. pine and oak, with absolutely no saw marks visible to the eye...we also got excellent crosscuts, surpassed only by an 80-tooth dedicated crosscut blade."
See *American Woodworker* April 1998, pp. 64-69.

BLADE DAMPENERS-STIFFENERS

FOR BETTER CUTS on all brands of blades, use our large 1/8" DAMPENERS-STIFFENERS against one side.

4"	..... $21
5"	..... $24
6"	..... $25

7" AND LARGER AVAILABLE

REDUCES NOISE 50%–75%

WE RECOMMEND OUR FACTORY SHARPENING as some local sharpening creates problems with **MICRO-CHIPPED EDGES** reducing blade life & cutting quality.
2-4 DAYS ON THESE AND ALL MAKES OF FLAT FACE & CONCAVE CARBIDE TIP SAWS. Ship via UPS. Typical 10x40T $17.00, 60T $19.00. Add return UPS $5.00, $1.00 each additional blade.

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Delta 36-220
LIMITED QUANTITIES

10" COMPOUND MITER SAW

2-1/2 HP, 15 amp motor. D-handle with trigger switch for positive control. Electric brake automatically stops blade in seconds. Includes 10" blade with 5/8" arbor, and retractable blade guard. Dust collection ready.

- Blade speed: 4900 RPM @ no-load
- Capacities: 2-3/4" x 5-3/4" crosscut; 2-3/4" x 4-1/8" 45° right & left miter; 1-3/4" x 5-3/4" 45° left bevel; 1-3/4" x 4-1/8" 45° x 45° compound
- Table diameter: 10-1/2"
- Tool weight: 60 lbs.
- Factory reconditioned, factory perfect

~~$199.99~~ $149.99

ITEM 06125-4MVA

CHICAGO Electric Power Tools

TRIM ROUTER

Now you can tackle those jobs that were too fine or exacting for a standard router. This compact router weighs only 4 lbs. for easy operation. Includes a straight and adjusting conductor to assist in trimming and engraving in both straight and circular patterns.

- 1/4" collet
- 8-1/2" overall length
- 110V, 3-1/4 maximum amp draw
- 30,000 RPM no load speed
- 4 lbs. tool weight

ITEM 33833-6MVA $36.99

NUGARD

THREE VIAL LASER TORPEDO LEVEL

No more fiddling around with line levels. Red laser projects level marks over 100 feet away – with pinpoint accuracy! Perfect for masonry, fencing, landscaping and cabinet work. Constructed from brass annodized aircraft aluminum. Three unbreakable vials for horizontal, vertical and 45°. V-groove for pipes. Threaded mount for tripods.

- Compact...only 6-3/4" long
- Shock and water-resistant for years of professional use
- FDA certified
- Accurate to 1/4" at 100 ft.
- 2 AAA batteries last up to 10-12 hours with continuous use

ITEM 37760-5MVA $59.99

ODOR FREE
HEAT DEVIL

PORTABLE 34,000 BTU FORCED AIR PROPANE HEATER

Circulate clean, heated air fast. Heavy duty fan and high BTU output combine for efficient heating in the coldest conditions. Features solenoid valve, pressure regulator, and gas hose. Fits standard refillable propane tank, not included. Some states may prohibit the use of unvented heaters; check local regulations.

- Uses 1-1/2 lbs. of propane per hour
- 15-1/4"L x 7-1/2"W x 10-1/2"H
- 13 lbs. shipping weight

~~$119.99~~ $99.99

ITEM 32217-8MVA

DRILL MASTER

TITANIUM NITRIDE FORSTNER BIT SET

The combination of high carbon steel with a titanium nitride coating will keep you drilling long after other bits have become worthless. Forstner design makes smooth flat bottomed holes, or angled holes with oval openings. Stores in its own box.

7 PC. SET

- Sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", and 1"

~~$14.99~~ $9.99

ITEM 01903-8MVA

20 PC. SET

- 20 sizes from 1/4" to 3/4" by 16ths, 7/8", 15/16", 1" to 2" by 8ths

~~$42.99~~ $29.99

ITEM 31130-1MVA

WE CARRY OVER 4000 ITEMS! CALL TODAY FOR A FREE CATALOG SUBSCRIPTION!

DELTA®
Delta 22-540

12" PORTABLE PLANER

- Long lasting high speed steel, reversible, double edged knives
- Precise thickness scale conveniently located for easy reference
- Four precision ground columns to effortlessly raise and lower cutter head
- Includes removable table extensions, and fold away depth adjustment for easy transport
- Convenient carrying handles
- Factory reconditioned, factory perfect

26.2 FPM feed rate; Motor: 15 amp, 120V; Table size with extensions: 12-1/8" x 26"; Capacities: 12" width, 6" thick, 3/16" depth of cut; 8000 RPM, 16,000 CPM; 27-1/4" x 20-1/2" x 15" overall dimensions; 68 lbs. net weight

ITEM 06177-6MVA $269.99

NEW PLANER

~~$329.99~~ $299.99

ITEM 00258-6MVA

PLANER BLADES

ITEM 33075-3MVA $29.99

SKIL

Skil 5150

LIMITED QUANTITIES

7-1/4" CIRCULAR SAW

- Maximum cut @ 90° 2-7/16", @ 45° 1-15/16"
- 10 amps, 2-1/3 HP, 4600 RPM
- Handy scales and cutting guide
- Factory reconditioned, factory perfect

ITEM 06188-0MVA $32.99

7-1/4" CARBIDE TIPPED CIRCULAR SAW BLADE

Precision ground M2 molybdenum tips for a sharp cutting edge. 5/8" arbor, 24 tooth blade; Heat vents, expansion slots

ITEM 38534-0MVA $2.49

CENTRAL MACHINERY

LIMITED STOCK

4" x 36" BELT/6" DISC SANDER

Adjustable belt sands inside and outside curves. Cast aluminum sanding disc features a cast aluminum table that locks in any angle from 0° to 45°. Table can be repositioned for use with belt or disc. Includes: 7-1/2" x 5" cast aluminum table, miter gauge, and adjustable backstop

- 1/3 HP, 1725 RPM, 115V, single phase
- 4000 FPM belt speed
- 1725 RPM disc speed

~~$79.99~~ $59.99

ITEM 05154-6MVA

CENTRAL MACHINERY

5 SPEED BENCH DRILL PRESS

- 2" stroke, 8-1/4" swing
- Speeds: 620, 1100, 1720, 2340 and 3100 RPM
- 1/3 HP motor moves at 1720 RPM
- Table: 8-1/4" square • 1/2" chuck
- 8-1/4" maximum distance spindle to table
- 22-1/2" high, 47 lbs.

ITEM 05901-2MVA $45.99

DRILL PRESS WITH KEYLESS CHUCK

- No more lost chuck keys

ITEM 34231-4MVA $47.99

CHICAGO Electric Power Tools

3/8", 14.4 VOLT CORDLESS DRILL KIT WITH KEYLESS CHUCK

High voltage, heavy duty battery gives long run times between charges. T-Handle design.

- Variable speed, reversible; 0 to 600 RPM
- 6 torque settings: 13-100 in. lbs.
- Includes 6 pc. drill bit set, 6 pc. screwdriver bit set, magnetic extension bit, charger, battery, keyless Jacobs® chuck, and carrying case

~~$69.99~~ $39.99

ITEM 34793-2MVA

14.4V REPLACEMENT BATTERY

ITEM 34794-0MVA $29.99

WESTERN SAFETY **SAFETY GOGGLES (3 PR.)**

- Meets OSHA and ANSI Z87.1-1989 requirements; SEI certified

ITEM 35710-0MVA $2.99

CENTRAL MACHINERY

25" RIP CAPACITY

10" INDUSTRIAL TABLE SAW

Die cast aluminum table 26" x 16" has adjustable 17-7/8" x 2" rip fence. Anit-kickback fingers and see-through blade guard for safety.

- Maximum depth of cut @ 90°: 3-1/8"; @ 45°: 2-1/2"
- Shipping wt.: 36 lbs.
- Miter gauge adjusts 0° – 60° left & right
- Motor: 2HP, 115V, 60 Hz, 10 amp, 4500 RPM
- Blade sold separately

~~$119.99~~ $79.99

ITEM 38533-1MVA

10" 40 TOOTH CARBIDE TIP SAW BLADE

Resharpenable precision ground tips; 5/8" arbor

ITEM 00529-4MVA $9.99

★ Within the 48 States / $3.95 handling on all orders. No per item shipping and handling charge.

4140

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BOSCH LIMITED QUANTITIES

3/8", 12 VOLT CORDLESS DRILL/DRIVER W/ KEYLESS CHUCK

- 0-400 low, 0-1200 RPM, variable speed reversible
- 225 in. lbs. maximum torque; 16 settings
- Better grip & longer, more comfortable use with new "T" handle
- Includes: 1 hour charger, 1 battery, driving bit & case
- Factory reconditoned, factory perfect

ITEM 51646-3MVA **$75.99**

3/8", 14.4 VOLT CORDLESS DRILL/DRIVER Bosch 3610K-146

- 255 in. lbs. maximum torque; 15 settings
- 0-450, 0-1200 RPM, variable speed reversible
- Includes: 2 amp hour battery, 1 hour charger, & case
- Factory reconditoned, factory perfect

ITEM 51730-4MVA **$85.99**

OLYMPIA-TOOLS

THE MOST USER FRIENDLY TAPE MEASURE YOU WILL EVER FIND!

E-Z READ™ TAPE MEASURES

Graduated in 32nds, tapes have 1/8" calibrations clearly marked, inch and foot increments in red and stud markings in red.

1" x 33 FT. **$8.99**
ITEM 38262-1MVA

1" x 25 FT. **$4.99**
ITEM 37570-3MVA

3/4" x 16 FT. **$3.99**
ITEM 38261-2MVA

CENTRAL MACHINERY

16" SCROLL SAW

- Precision milled 14-1/2" x 8" cast aluminum table tilts 0° to 45° left
- Uses pin end blades, 5-1/2" long
- Heavy duty cast iron frame and base reduce vibration
- 1/8 HP, 110V, .83 amps
- 1750 SPM blade speed
- 7/8" blade stroke
- Single speed

ITEM 37908-2MVA **$49.99**

FOOT SWITCH WITH GUARD

Ready to use. Steel housing and 8 ft. cord.

ITEM 37784-0MVA **$12.99**

CENTRAL MACHINERY

12" DIRECT DRIVE BENCH TOP DISC SANDER

Get sharp, accurate finishes without burning or marring. Direct drive disc won't slip. Table tilts to 45°; 2" dust collection outlet; fan-cooled brushless motor; miter gauge, base pads prevent creeping; safety switch. Includes 60 grit, 12" sanding pad.

- 1 HP, 120V, 14.0 amps
- No load speed: 1793 RPM
- Wheel diameter: 12" • Base: 13" x 10"
- Shipping wt.: 92 lbs.

ITEM 37297-3MVA **$89.99**

Pittsburgh Pittsburgh LIFETIME WARRANTY

2 PC. 3/4" HEAVY DUTY PIPE CLAMP

Constructed from heat-treated cast iron, these durable clamps keep your work rock steady. Just screw the handle side onto a 3/4" threaded pipe and slide the spring loaded end on. You're ready to go! Pipe not included.

- Handle screw operating range: 2-1/8"
- 1-1/2" throat depth
- Weight: 2-7/16 lbs.

ITEM 31255-1MVA **$3.99**

1/2" PIPE CLAMP

- 1-1/2" throat depth
- Weight: 1-4/5 lbs.

ITEM 37056-2MVA **$2.99**

FINEST HARDWOOD

SOLID HARDWOOD WORKBENCH

Includes large flush mounted vises. Twin rows of 10 bench dog holes hold just about any project. Tools shown sold separately.

- 2 vises: 13"W x 1-1/4"D x 7-1/2"L max.
- Trough: 47-3/8"L x 5-1/2"W x 2-3/4"D
- Overall: 55"L x 25"W x 32-3/4"H
- Work area: 49-1/4" x 13-1/2"
- 20 bench dog holes
- Weight: 64 lbs.

~~$129.99~~ **$99.99**
ITEM 01635-0MVA

RYOBI LIMITED QUANTITIES

Ryobi OSS450

HIGH QUALITY PRODUCTIVITY AT AN AFFORDABLE PRICE!

OSCILLATING SPINDLE SANDER

Nothing beats this machine for contour and curve sanding. 1/2" to 3" drum sizes (includes 1/2" and 1") give you the control you need. Removes stock fast using the whole drum and prevents sanding burn marks.

- 45 oscillations per minute
- 120V, 3.5 amps
- Dust collection port
- 29 lbs. tool wt.
- 1680 RPM

~~$139.99~~
ITEM 30484-6MVA **$129.99**

DRILL MASTER

115 PC. TITANIUM NITRIDE COATED DRILL BIT SET

These titanium nitride coated high speed steel bits last up to six times longer than standard bits. Cool turning titanium bits are a must for metalworkers. All bits can be resharpened. Straight shanks.Includes: 29 fractional sizes 1/16" thru 1/2", 26 letter sizes A thru Z, 60 numbered sizes 1 thru 60, and heavy duty metal drill index.

~~$34.99~~ **$29.99**
ITEM 00528-1MVA

115 PC. M2 HIGH SPEED STEEL DRILL BIT SET WITH INDEX

~~$69.99~~ **$45.99**

- Same sizes as above
- M2 high speed steel

ITEM 01611-5MVA

CHICAGO Electric Power Tools

VARIABLE SPEED RECIPROCATING SAW

- Gear driven, variable speed
- 1-1/4" stroke • 3.6 amps
- 600 Watts • All ball bearing
- 300 SPM to 2400 SPM
- 110V, 60 Hz, single phase
- Overall length: 17"
- Tool weight: 7-1/4 lbs.

ITEM 36595-6MVA ~~$59.99~~ **$39.99**

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Grab bag selection of saw blades for your reciprocating saw. Contents vary for each package. 5 PACK

ITEM 36340-4MVA **$1.99**

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- 1/4" shanks
- Individually organized storage cases

15 PC. ASSORTED BITS

1-1/4" rabbeting♦, 1-3/8" cove♦, 1-1/16" roman ogee♦, 1-1/4" rounding over♦, 1/2" flush trimming♦ 1-3/16" 45° chamfer♦, 1/2" dovetail, 3/4" straight, 1/2" straight, 3/8" V-groove, 1/4" combination panel, 1/4" straight, 1/2" mortising, 1/4" cove, 1/8" straight. ♦Includes pilot bearing

ITEM 31164-5MVA **$29.99**

4 PC. ROUNDING OVER BITS

• 1-5/32" long shanks • 2 flutes each
Sizes: 1/8", 1/4", 3/8" and 1/2" with pilot bearing tips

ITEM 33078-7MVA **$15.99**

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- Maximum pressure: 100 PSI
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- 4-1/2 lbs. tool wt.

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PRODUCTS THAT PERFORM — SHOP TESTED

Continued from page 86

Less clamp pressure with a twist of the wrist

How can you improve on the old reliable spring clamp? Well, the folks at Adjustable Clamp Company found a couple of ways to better it with their Pony Adjust-a-Clamp.

Let's say you're working with a fragile wood such as balsa. A regular spring clamp will literally crush your work. With the Adjust-a-Clamp, you can lessen the clamping pressure to as little as one pound, by turning an adjustment screw between the handles.

You'll like these clamps if arthritis or injury have ever hampered your clamping. When my tennis elbow flares up, I can't squeeze a normal spring clamp to save my life. But, with the Adjust-a-Clamp, I loosen the tension, put the clamp where I want it, then crank the tension back up with a screwdriver. It works without fail.

The other improvement I like is the pivoting plastic jaws on the Adjust-a-Clamp. They're much better than the old plastic-coated steel jaws because they have more clamping surface, and they won't pull your work out of alignment.

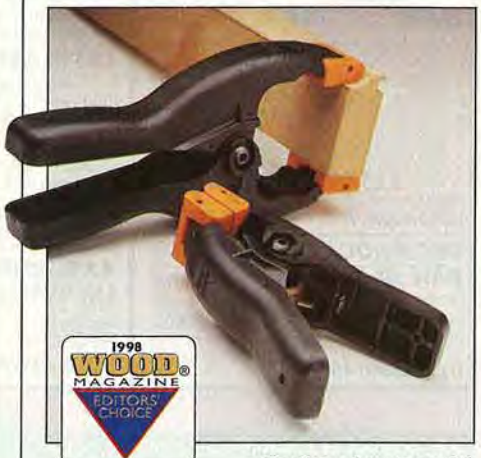
—Tested by Bob McFarlin

PRODUCT SCORECARD

Pony Adjust-a-Clamp

Performance	★ ★ ★ ★ ★
Price	1", $2.45; 2", $3.45
Value	★ ★ ★ ★ ★

Adjustable Clamp Co., 417 North Ashland Ave., Chicago, IL 60622. Call 312/666-0640.



Continued on page 94

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BN200	18 ga. brad nailer kit 3/4" - 2"	134
CDA250	bammer cdls 15 ga 2 1/2" fin nailer	277
CF1400	1 hp pancake compressor	194
CF15401	1/2 hp side stack compressor	292
CF24002	hp side stack compressor	318
CFN250	bammer cdls 16 ga 1-2 1/2" fin nailer	277
DA250	15 ga. angle fin nailer kit 1 1/4" - 2 1/2"	199
DA250A	15 ga. ang fin nailer kit 1 1/4" - 2 1/2"	234
FN250A	16 ga. finish nailer kit 3/4" - 2 1/2"	182
FR350	framing nailer w/case 3 1/2" capacity	287
NS100	narrow crown stapler kit 1/2" - 1"	94
NS150	narrow crown stapler kit 1/2" - 1 1/2"	154
NSS150	18 ga 1/4" narrow crwn stapler kit	178
330	speed block finishing sander	67
332	Quiksand 5" rndm orb w/stikit pad	58
333	Quiksand w/hook & loop, dstls	64
333VS	5" var. speed Quiksand ros, dstls	84
340	1/4 sheet finishing sander dstls	54
352VS	3" x 21" belt sander dstls w/var sp	174
360	3" x 24" belt sander w/dust bag	213
360VS	3" x 24" belt sander, vs with bag	228
362	4" x 24" belt sander w/dust bag	222
362VS	4" x 24" vs dustless belt sander	236
505	1/2 sht fin sander	138
5116	omni jig	274
556	bisc joiner w/case & tilt fence	134
557	deluxe plate joiner kit	197
690	1 1/2 hp router	138
691	1 1/2 hp "d" handle router	159
693PK	1 1/2 hp plunge router, fixed base, cs	194
693PKD	693PK w/fixed, plunge & "D" base	242
697	router table with 1 1/2 h p motor	232
698	router table only	134
6931	plunge router base	82
7116	new 24" omnijig	308
7336	6" random orbit var. speed sander	142
7518	3 1/4 hp fixed base router-5 sp	288
7539	3 1/4 hp plunge router-5 speed	289
9444	profile sander kit w/accys & cs	99
9444VS	Var. speed profile sander kit	111
9543	Quik-Change bayonet saw kit	159
9862	12v cordless kit w/2 batteries, case	152
9862F	12v kit w/2 batt, charger & flashlite	159
9872	14.4v crdls drill kit w/2 batt. & case	186
9874	14.4v 1/2" t handle cdls drill kit	199

Panasonic

EYC003	combo 15.6v drill & 12v wood saw w/4 batteries	398
EY6100EQKW	12V cdls drill w/kit 2 batteries, chrgr & case	174
EY6230FQKW	15.6v cordless kit complete w/free job radio, 1/2" chuck	206

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22-44 Pro	22" pro drum sander	1799

SKIL

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HD77M	7 1/4" magnesium worm drive saw	169
HD1605-02	biscuit joiner	134
3400	10" table saw w/carb blade & stand	198

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DC-1200W	2 hp white dust collector	399
JJ-6CSXW	6" enclosed stand white jointer	499
JWP-15CSW	15" white enc. stand planer	1199
JWBS-14CSW	14" white enc. bandsaw	569
JTAS-10X650-WI	3 hp white cabinet saw/accys	1399
JWTS-10CWPFX	1 1/2 hp contractors saw w/accys	795
JPM-13	13" planer moulder	795
JWS18H0	1 1/2" hpshaper 1/2" & 3/4"spindls	524
JML-1014	mini lathe	324

BOSCH

1275DVS	3" x 24" vs dustless belt sander	213
1276DVS	4" x 24" vs dustless belt sander	224
1278VSK	compact belt sander kit	128
1295DH	5" random orbit sander	82
1584AVSK	clic barrel handle jig saw, vs w/case	149
1587AVSK-50	50th anniv. jig saw kit	156
1587AVSK	top handle jig saw, var sp w/case	149
1613EVS	2 hp var sp plunge router	199
1615EVS	3 1/4 hp plunge router	298
1617	1 3/4 hp router	158
1617EVS	2 hp electronic var. speed router	179
1618	1 3/4 hp D-handle router	169
3107DVSK	5" random orbit sander with case	114
3294EVS	in line grip jig saw	122
3315K	12v crdls t handle w/2 bat, cs & chrg	158
3615K	14.4v cdls drill kit w/2 batteries	174
3725DVS	5" dustless vs random orbit sander	144
3727DVS	6" dustless vs random orbit sander	148
3915	10" slide compound miter saw	498

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		BOX OF 5 (EACH)	PRICE (EACH)
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K3.524	24" k body clamp	31.95	34.95
K3.531	31" k body clamp	34.95	36.95
K3.540	40" k body clamp	38.95	41.95

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14	oscillating spindle sander	295
15	15" planer w/enclosed stand	1189
24	2 hp shaper w/1/2" & 3/4" spindle	1049
44	14" band saw, 1 hp, enclosed stand	645
54	6" jointer w/enclsd stand	495
60	8" long bed jointer	1775
64A	1 1/2 hp tbl saw w/accu fence	745
66	3 hp, 1 ph 10" t.a. saw w/50" fence	1995
66	5 h p, 1 ph 10" t.a. saw w/50" fence	2095
73	1 1/2 hp dust collector	389
75	3 hp dust collector	675
84	combo belt & disc sander	445
412	12 1/2" portable planer	395
471	1 hp dust collector	219

AIRY

EZ2	18 gauge nail/staple kit	109
0249NK	18 gauge brad nailer 3/4"-2" w/case & 5000 nails	108
0232NK	18 ga brad kit 3/8"-1 1/4" with case	68
0566T	angle finish nailer 1"-2 1/2"	202
0626NK	18 gauge narrow crown stapler 3/8"-1 " with case	103
0638S	narrow cr stapler 3/4"-1 1/2"w/cs	179
ITM/ART	0241 & 0626 in one case	119

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Fein

MSXE-636-2	Multimaster triangular sander *includes case, paper asst. & 2 blades*	172
99-55-13	Fein turbo vac II	248
MSFE636-1	Random orbit sander	489

RYOBI

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DBJ50	detail biscuit jointer	68
DC500K	detail carver kit	62
HT20VSK	multi rotary tool w/cs & accys	48
ML618	18" wood mini lathe	199
OSS450	oscillating spindle sander	149
RE185	2 1/4 hp fixed base vs router	109
SC165VS	16" vs scroll saw	164

HITACHI

C7SBK	7 1/4" circ. saw w/case	109
C8FB2	8 1/2" slide compound miter saw	438
C10FC	10" compound miter saw	198
C10FS	10" slide compound miter saw	558
DN10DYK	9.6V cdls right angle kit	168
DS14DV-G	14.4v kit w/2 bat & free Gerber tool	209
M12V	3 hp var speed plunge router	189
NR83A	full head strip nailer, 2 - 3 1/2 cap	369
NV83A	coil nailer, 2" to 3 1/4" capacity	369
P20SB	3 1/4" planer	89

freud

EB100	edge bander	214
FC107	7 pc carbide forstner bit set	89
JS100	biscuit joiner	94
JS102	biscuit joiner w/var. angle fence	118
FT2000E	3 hp plunge router	184
F410	10" x 40t quiet blade	48
F810	10" x 80t quiet blade	73
LM72M010	10" x 24t flat top rip blade	36
LU82M010	10"x 60t crosscut/rip blade	44
LU84R010	10" x 50T red combo blade	42
LU85R010	10" x 80T red crosscut blade	58
LU92M010	10" x 60 teeth TCH laminate	59
LU98M010	10" x 80 teeth TCH lam & wood	67
SD208	8" safety dado	94
SD308	8" safety dado with case	116
SD508	new 8" super dado set	167
SD608	8" dial-a-width dado	198
TK406	10" x 60 teeth thin kerf blade	36
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6095DWLE2	same as above w/flashlght	139
6213DWAE	12v cordless kit w/ 2 batteries	169
6233DWAE	14.4v cordless kit w/2 batteries	199
6333DWAE	14.4v 1/2" cordless kit	209
BO5001	5" random orbit sander	67
LS1013	10" slide dual comp miter saw	558
LS1211	12" slide dual comp miter saw	668
N1900B	3 1/4" planer	146

Milwaukee

6490-6	10" miter saw	274
6496-6	*new* 10" slide compound miter saw	545
6497-6	10" slide compound saw w/accs	619
6537-22	10 amp recip saw w/case	178

SENCO

SKS	narrow crown stapler	247
SLP20	brad nailer w/cse 5/8"-1 5/8" cap	198
SFN40	finish nailer 1 1/4"-2 1/2" cap	338

DELTA

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14-650	hollow chisel mortiser	238
22-560	*new* 12" portable planer	378
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28-185	bench top band saw	167
28-270	14" bandsaw, 1 hp white, enc stand	849
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40-650	Q-3 scroll saw	429
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50-850	1 1/2 hp dust collector, 1200cfm	289
50-860	room air cleaner, 850 cfm	234

DEWALT

DW100	3/8" drill, 0-2500 rpm, w/chuck key	62
DW4PAK	18v kit circ saw, recip saw, hammr drill and light	559
DW309K	recip saw, var sp, w/blades & cs	168
DW321K	top handle jig saw kit	158
DW359K	7 1/4" circular saw w/case	128
DW378G	7 1/4" framers saw	168
DW420	5" random orbit sander, psa	62
DW421	5" dstls rndm orb sander, velcro	67
DW423	5" vs dustls random orbit sander	79
DW431	3" x 21" dstls belt sander var sp	185
DW443	6" rt angld var sp ROS sanderw/h&l	132
DW610	1 1/2 hp router, 9 amp	144
DW621	2 hp vs dstls plunge router	198
DW677K	3 1/4 hp planer kit	149
DW682K	biscuit joiner kit	159
DW705	12" miter saw w/carb blade	358
DW708	*new* sliding comp. miter saw	644
DW733	*new* 12 1/2" portable planer	435
DW744	10" portable table saw	499
DW788	*new* 20" var. speed scrollsaw	448
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DW972K2	12v crdls kit/w battery & cs	179
DW972KS2	12v combo drill & saw kit	274
DW991K2	DW991K with two batteries	206
DW991KC2	14.4v drill & recip saw combo kit	372
DW991KL2	14.4v drill, circ saw, flashlight kit	349
DW991KS2	14.4V cdls drill & circ saw kit	338
DW995K	18V 1/2" drill w/batt, chrgr & cs	228
DW995KC2	18v drill & recip saw combo kit	395
DW995KS2	18V drill & saw combo kit	377
DW997K	18V hammer drill kit, 1/2" chuck	239
DW997KC2	18V hammer drill & recip saw kit	415

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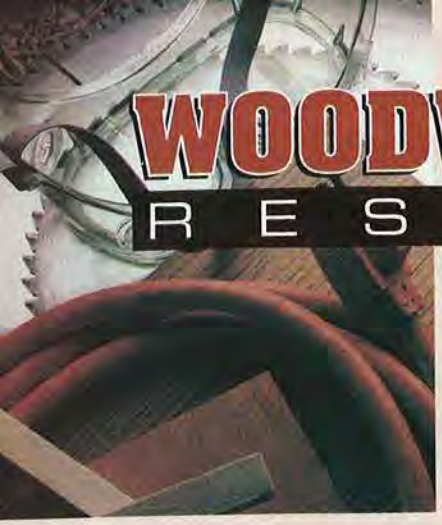

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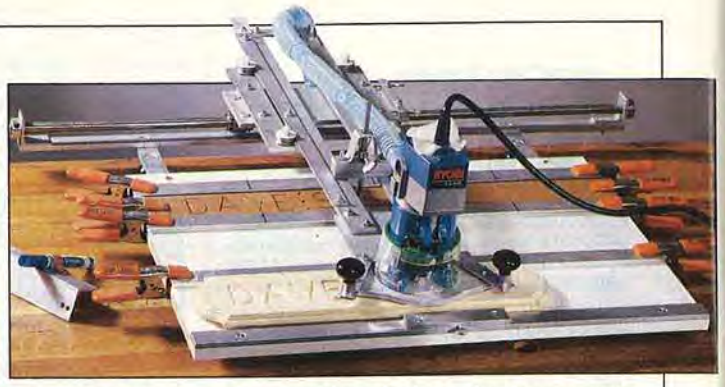
Continued from page 90

Ball bearings give this sign router its smooth moves



Like most other sign routers, the Woodworker Machine Model J-20 employs a pattern follower (a stylus) linked to a router. As you trace the stylus along a two-dimensional pattern, the router cuts the figure into wood.

Smooth ball-bearing action sets the J-20 apart from other sign-routing devices. I found router movement smooth and almost effortless.

On this machine, the router base and stylus move fore and aft on a carriage, which itself travels side to side along a rod across the back of the machine. Total travel is 14" fore and aft and 24" side to side. The J-20 handles stock up to 12" wide.

I tried my hand at several pine and cedar signs, using the 2"-high CNC-cut phenolic block letter templates furnished with the machine. (You can buy other sizes from 1½-4".) I was pleased with the results—the routed letters and numbers came out sharp and uniform.

I found the machine less capable when attempting to rout a sign in oak. I had to pay close attention to controlling the router due to flexing in the guide rods. (Jerry Kimball of the Woodworker Machine Center later told me that the J-20 isn't intended for hardwood routing.)

The company offers the machine with a 1½-hp router or a laminate trimmer. (I recommend going with the smaller, lighter laminate trimmer for ease of use.) You can also buy the J-20 without a router. An effective dust-collection attachment is available, too. The instructions show operation clearly, and also tell you how to use the machine to print cards, signs, and banners with felt-tip markers.

The manufacturer touts the Woodworker Machine as the foundation of a home-based business. In view of its price, it would be easier to justify buying one on those grounds rather than for occasional hobby use.

–Tested by Dave Henderson

Continued on page 101

PRODUCT SCORECARD

Woodworker Machine Model J-20

Performance	★ ★ ★ ☆ ☆
Price	$695 with router, $595 without router
Value	★ ★ ★ ☆ ☆

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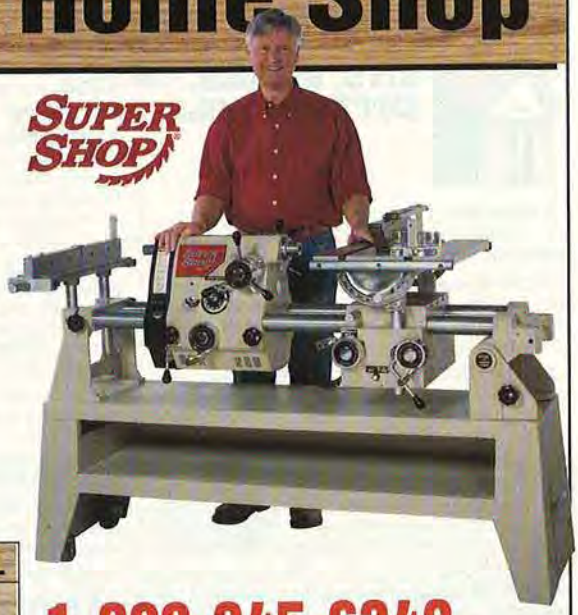

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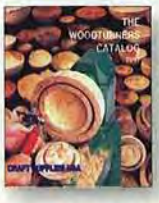

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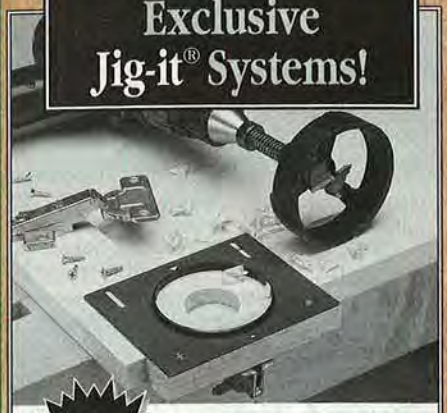

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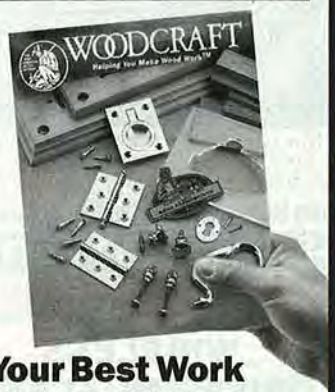

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SHOP TESTED

Continued from page 94

Twist and snap, change your router bit

I really like telling you about items that make woodworking easier, so I *love* reporting on the Eliminator RC router collet for Porter-Cable routers with ½" collets. Though not toolless, the Eliminator has a simple hex-head screw, which acts on a pair of wedge-shaped keys in the chuck, to hold router bits fast. Slide the bit in, turn your hex-head wrench a full turn, and it's locked. Changing bits is a one-handed job.

But does it work? To test for bit slippage, I ran a gamut of bits, from a straight pattern bit up to a big panel-raiser, in oak and hard maple, intentionally trying to get the bit to slip. Even when I jammed the panel bit running at 12,000 rpm, I found not a hint of slippage.

To replace the original equipment collet with The Eliminator, just thread the old collet off, and the new one on. An optional adapter sleeve for ¼" bits slips right into the ½" collet, and it grips just as well.

I found only one difficulty with the Eliminator: When the hex-head screw lines up with the router base, a T-handle driver can't get to it. You can change your router depth to change bits, or go to an auto-supply store and get a ⅛" hex balldriver. It turns the screw from just about any angle—very handy when using it in a router table.

—Tested by Dave Henderson

PRODUCT SCORECARD

The Eliminator RC for Porter-Cable routers with ½" collets

Performance	★ ★ ★ ★ ★
Price	½" collet, $52.95 ppd.; ¼" adapter, $12
Value	★ ★ ★ ★ ☆

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Duplicator for Jet® mini-lathe w/video
#CML-DUPJ ..... $129.95 / UPS $5

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Circle No. 75

WOOD ANECDOTE

Print this article

Sycamore

The hardwood giant of the virgin forest

Old sycamore trees frequently were hollow, providing a handy frontier stable for settlers' livestock.

Although few woodworkers become acquainted with the wood of the American sycamore (*Platanus occidentalis*), that wasn't always so. Back when the United States was still a new nation, and its western frontier was just beyond the Allegheny Mountains, sycamore was the giant of the forest. It wasn't uncommon for pioneers in the Ohio River Valley to come upon huge sycamores. In 1802, one growing on an island in the Ohio River measured 13' in diameter 4' above the ground. Such old, large trees were usually hollow, and thriving despite the malady.

For some purposes, the hollowness made the tree all the more desirable. A frontier farmer would fell the hollow sycamore, then crosscut it to appropriate lengths. By nailing on bottoms of tightly joined boards, the industrious plowman had grain-storage containers. Left standing, hollow sycamores also were handy for stabling goats, pigs, and other livestock until a shelter could be built for them. And how many wandering woodsmen might have found refuge in a hollow sycamore?

Although hard, tough, and resistant to splitting, sycamore posed some difficulty in drying. That's why it was used only on a limited basis for shipping trunks, piano and organ cases, washing machine bodies, and pails. It also was the choice for countertops and chopping blocks in butcher shops because it withstands the relentless punishment of cutting edges.

While still the largest hardwood tree of American forests, yesteryear's giants have long fallen. If you do spy an elderly sycamore, bang on it. The trunk may resonate with historic hollowness.

Illustration: Jim Stevenson

"All my tools should be this good!"

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3X18	.86 ea	4X36	1.35 ea
3X21	.90 ea	6X48	3.50 ea
3X23 3/4	.93 ea	6x89	6.24 ea

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DELTA TOOLS

Model	Description	List	Sale
31-750	NEW Bench Random Orbit Sander		Sale 199
28-150	NEW 9" Bench Band Saw		Sale 155
50-860	NEW 850 CFM Air Cleaner		Sale 239
31-695	6" Belt/9" Disc Sander	441	299
23-710	Sharpening Center	217	145
31-460	4" Belt/Disc Sander	198	119
40-560	16" 2 speed Scroll Saw	230	129
40-540	16" var/spd Scroll Saw	249	165
11-990	12" Bench Drill Press	255	184
11-090	32" Radial Bench Drill Press	405	279
43-505	1/2" Bench Router/Shaper	398	269
22-540	12" Bench Top Planer		Sale 259
28-195	10" Band Saw	390	309
22-560	12-1/2" Planer w/ extra knives		329
36-865	Versa Feeder Stock Feeder		249
36-220	10" Compound Mitre Saw	294	199
28-185	Bench Band Saw	213	168
36-240	10" Sliding Mitre Saw	569	439
37-070	6" v/spd Bench Jointer	351	265
14-650	Hollow Chisel Mortiser	380	249
17-900	16-1/2" Floor Drill Press	490	329
17-920	NEW Mortise Chisel Kit		Sale 59
36-285	8-1/4" Builders Saw w/ stand		Sale 268
34-555	Sliding Table	487	289
36-250	10" Slide Compound Saw	825	449
31-780	Oscillating Spindle Sander	253	194
31-780K	31-780 w/ 31-781 spindle set		209
46-700	12" Wood Lathe	575	465
40-650	Q3 18" Scroll Saw		Sale 389
36-905	30" Unilence	346	255
36-906	50" Unilence	444	299
36-444	10" Contractors Table Saw		Sale 579

The following tools have a $50.00 rebate ! Price shown is before rebate.

36-455	10" Contractors Table Saw w/ 30" unilence, cast iron wing, 34-914 table board, & carbide blade		Sale 849
22-675	DC380 15" Planer		Sale 1175
28-275	14" Band Saw 3/4 HP		Sale 595
28-280	14" Band Saw 1 HP motor with enclosed stand		Sale 739
28-270	14" Band Saw 1 HP w/ 50-274 mobile base, 28-855 rip fence, & 28-266 cool blocks		Sale 839
31-280	Sanding Center w/ stand		Sale 789
37-190	6" Deluxe Jointer	603	445

NEW Single Stage Dust Collectors

50-850	1-1/2 HP, 1200 CFM		Sale 285
50-851	2 HP, 1500 CFM		Sale 489

MILWAUKEE TOOLS

6527	NEW Sawzall with case	343	169
6537-22	6527 w/quick lok blade change	224	175
0407-22	12V Drill w/kyls chuck&2 batt	380	175
0224-1	3/8" Drill 4.5 amp magnum	236	132
0234-6	1/2" Drill 4.5A mag 0-850 rpm	255	134
0235-1	1/2" Drill w/keyless chuck	255	139
0244-1	1/2" Drill 4.5A mag 0-600 rpm	255	134
0222-1	3/8" Drill 3.5 amp 0-1000 rpm	213	119
0228-6	3/8" Drill 3.5 amp 0-1000 rpm	207	109
0375-1	3/8" close quarter Drill	255	148
0379-1	1/2" close quarter Drill	288	165
6546-6	Screwdriver 200 & 400 rpm	150	89
6547-6	6546-6 w/bits,1/4" chuck & cs	185	108
5399	1/2" D-hdle Hammer Drill Kit	356	219
5397-1	3.8" v/ spd Hammer Drill Kit	275	145
5371-6	1/2" v/ spd Hammer Drill Kit	360	194
3107-6	1/2" v/spd right angle Drill Kit	411	234
6142	4-1/2" Grinder w/case & acc.	224	129
6490-6	10" Mitre Saw	496	265
6491	6490 w/ carbide blade & bag	594	345
6494-6	10" Compound Mitre Saw	585	319
6266-6	Top Handle Jig Saw	315	159
6496-6	10" Slide Compound Saw	1050	569

FREUD CARBIDE TIPPED SAW BLADES
5/8" Bore - Industrial Grade

Item	Description	Teeth	List	Sale
LU72M010	Gen Pur. A.T.B.	10" 40	69	42
LU82M010	Cut-off 10"	60	93	29
LU84M011	Comb 10"	50	78	45
LU85R010	Super Cut-off	10" 80	115	64
LM72M010	Ripping 10"	24	69	38
LU73M010	Cut off 10"	60	84	49
LU87M010	Thin Kerf 10"	24	72	45
LU88M010	Thin Kerf 10"	60	88	49
LU98M010	Ultimate 10"	80	128	68
LU91M010	Compnd Mitre 10"	60	88	54
F410	Quiet Blade 10"	40	95	49
SD308	8" Dado - Carbide		230	119
SD508	8" carbide w/case & shims		344	172
FB100	16 piece Forstner Bit Set		338	194
94-100	5 pc. Router Bit Door System		320	169
FT2000E	Plunge Router		Sale	189

HITACHI TOOLS

C8FB2	8-1/2" Slide Compound Saw	1169	449
C10FS	10" Slide Compound Saw	1627	579
C15FB	15" Mitre Saw	1346	645
NV45AB	Coil Roofing Nailer	935	379
NT32AE	NEW Pinner 5/8" - 1-1/4"		Sale 85
NT50AE	NEW Pinner 3/4" - 2"		Sale 129
C10RA	NEW 10" Table Saw	632	319

MAKITA TOOLS

Model	Description	List	Sale
5090DW	3-3/8" Saw Kit 9.6 volt	280	155
DA391D	3/8 angle Drill 9.6V	166	114
DA391DW	3/8" angle Drill Kit 9.6V	341	175
ML902	Incandescent Flashlight 9.6V.	14.95	
6095DWE	9.6 volt Drill Kit w/2 batt		Sale 125
6095DWLE2	6095DWE w/flashlight		Sale 139
632007-4	9.6 volt Battery	47	30
632002-4	7.2 volt Battery	39	28

NEW 18 VOLT MAKITA TOOLS

6343DWAE	1/2" Drill Kit		Sale 249
5620DWA	6-1/2" Circular Saw Kit		Sale 259

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6213DWAE	12V 3/8" Drill Kit	325	169
6233DWAE	14.4V 3/8" Drill Kit	358	205
9900B	3"x21" Belt Sander w/bag	347	165
9924DB	3"x24" Belt Sander w/bag	360	169
N1900B	3-1/4" Planer with case	263	142
1912B	4-3/8" Planer	352	205
N9514B	4" Disc Grinder 4.6 amp	118	65
DA3000R	3/8" Angle Drill	355	185
2708W	8-1/4" Table Saw	637	295
6405	3/8" Drill Rev. 0-2100 rpm	115	65
6013BR	1/2" Drill Rev. 6 amp	270	159
9401	4" x 24" Belt Sander w/bag	458	219
5007NB	7-1/4" Circ Saw w/ case	250	125
LS1011	10" Slide Compound Saw	995	429
LS1211	12" Slide Compound Saw	1620	695
3901	Plate Joiner Kit	376	159
3612C	3 HP Plunge Router	492	249
LS1040	10" Compound Miter Saw	460	259
LS1013	10" Dual Compound Slide Miter Saw	1088	599
BO5010	5" Random Orbit Sander	142	72
LS1220	NEW 12" Compound Miter Saw		379
9227C	NEW 7/9" Polisher	350	195
SJ401	NEW 16" Bench Scroll Saw	300	175
2702	NEW 8-1/4" Table Saw		Sale 299
2703	NEW 10" Table Saw		Sale 319

SENCO AIR NAILERS

SFN1+	Finishing Nailer 1 - 2" w/ cs	448	225
SN325	Nailer 1-7/8 - 3-1/4"	665	365
SLP20	Pinner w/cs 5/8 -1-5/8"	422	185
SKS	Stapler 5/8 - 1-1/2"	390	245
SN70	Framing -Clip Hd 2 - 3-1/2"	725	449
SN65	Framing -Full Hd 2 - 3-1/2"	709	379
SN600	NEW Framing 2 - 3-1/2"	699	369
SFN40	Finish Nailer 1-1/4 - 2-1/2"	569	319

NEW Accuset Nailers by SENCO

A100LS	Finish Stapler 1/2" - 1"	180	119
A150LS	Finish Stapler 1/2" - 1-1/2"	220	149
A125BN	Brad Nailer 5/8" - 1-1/4"	160	99
A200BN	Brad Nailer 5/8" - 2"	215	139

BOSTITCH AIR NAILERS

Model	Description	List	Sale
N80S-1	Stick Nailer	Super Sale	325
RN45	Coil Roof Nailer 3/4 - 1-3/4	845	359
N60FN-2K	Finishing Nailer w/ case	557	269
BT35-2K	Brad Tacker 5/8" - 1-3/8" with case, oil, & brads	279	125
MIIIFS	Flooring Stapler 15 gauge	902	529
S32SX-1K	Finish Stapler-1/2" - 1-3/8" with case & oil	269	145

JORGENSEN ADJUSTABLE HANDSCREWS

Item#	Jaw Length	Opening Capacity	List	Sale	Box of 6
#0	8"	4-1/2"	20.35	12.10	66.95
#1	10"	6"	23.30	12.90	71.95
#2	12"	8-1/2"	26.75	14.90	83.95
#3	14"	10"	33.85	18.55	105.75

PONY CLAMP FIXTURES

Model	Description	List	Sale	Lots of 12
50	3/4" Black Pipe	15.45	8.50	92.50
52	1/2" Black Pipe	12.65	6.95	74.95

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EY6100FQKW	12V 3/8" Drill kit w/ 2 Ironman batteries, 15 min. charger, & case	379	179
EY6230FQKW	NEW 15.6V Drill Kit with 2 Ironman batteries, 30 minute charger & case	425	209
EY3503FQWKW	5-3/8" 12V Wood Cutting Circular Saw Kit	500	259
EYC001	EY6100FQKW drill, EY3503FQW saw, 2 batteries, 15 minute charger, and case	Sale	315

BIESEMEYER FENCES

B-50	50" Commer. Saw	443	325
T-SQUARE 52	52" Homeshop	360	275
T-SQUARE 40	40" Homeshop	335	255
T-SQUARE 28	28" Homeshop	325	245

AIRY AIR NAILERS

Model	Description	List	Sale
0241SK	Brad Nailer 3/8" - 1-9/16"	180	98
0626SK	1/4" Crown Stapler 3/8" - 1"	194	98

Above nailers come w/case, fasteners, oil & wrenches

0241/0626
0241 Brad Nailer, 0626 Stapler, case, fasteners, oil, & wrenches
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24640	24" Level w/ hand holes	62.20	43
24670	48" Level w/ hand holes	79.70	58

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Circle No. 92

DEWALT TOOLS

Model	Description	List	Sale
DW309K	Recipro Saw 10 amp	318	175
DW378G	7-1/4" Framer's Saw	210	169
DW222	3/8" Drill, 0-1200 rpm	184	99
DW231	1/2" Drill, 0-850 rpm, 7.0 amp	240	129
DW236	1/2" Drill, 0-850 rpm, 7.8 amp with keyless chuck	264	149
DW124K	1/2" right angle Drill	590	329
DW321K	Top Handle Jigsaw Kit	300	164
DW364	7-1/4" Circ. Saw w/brake	294	162
DW610	1-1/2 HP 2 handle Router	266	149
DW411K	1/4 sheet Palm Sander w/ cse	88	58
DW682K	Biscuit Joiner with case	448	169
DW705	12" Compound Mitre Saw	734	359
DW621	2 HP Plunge Router	400	218

DW621 comes with Free DW6956 fine height adjuster !

DW675K	3-1/8" Planer with case	292	164
DW677K	3-1/4" Planer w/ case	268	155
DW431	3 x 21 v/spd Belt Sander	338	188
DW421	5" Palm Ran. Orb Sander	144	74
DW423	Palmgrip Random Orbit Sander - variable speed	170	94

DW421 & DW423 come with Free DW4317 case !

DW673K	Laminate Trimmer Kit	364	188
DW272	Drywall Gun, 0-4000, 6.3 amp	160	95
DW276	Drywall Gun, 0-2500, 6.5 amp	160	95
DW935K	14.4V 5-3/8" Trim Saw Kit	444	237

DEWALT CORDLESS DRILLS

DW952K-2	3/8" v/spd w/ two 9.6V XR batteries	284	129
DW972K-2	3/8" variable speed w/ two 12V XR batteries	362	184
DW972KQ-2	Above drill kit with 15 minute charger	Sale	229
DW991K-2	3/8"variable speed w/ two 14.4V XR batteries	415	209
DW991KQ-2	Above drill kit with 15 minute charger	Sale	245
DW994KQ	1/2" variable speed w/ one 14.4V XR batteries	458	239

Above drill kits come w/ charger & steel case !

DW991KS-2	DW991K drill, DW935 trim saw, 2 XR batteries & case	Sale	345

DEWALT 18 VOLT CORDLESS TOOLS

DW938K	Recipro Saw Kit	520	269
DW995K	1/2" Drill Kit w/ 1 battery	428	229
DW995K-2	1/2" Drill Kit w/ 2 batt.	Sale	249
DW997K	1/2" Drill/Hammer Drill Kit	454	249
DW936K	5-3/8" Saw Kit	458	249
DW995KS-2	DW995K Drill, DW936 Saw and case	Sale	385
DW991KC-2	DW991K 14.4V drill kit, DW937 14.4V recipro saw,& case	375	
DW995KC-2	DW995K 18V drill kit, DW938 18V recipro saw, & case	395	
DW997KC-2	DW997K 18V drill kit, DW938 18V recipro saw, & case	419	

DEWALT BENCH TOP TOOLS

DW708	12" Dual Compound Slide Mitre Saw	Sale	649
DW788	20" Scroll Saw	Sale	469
DW733	12" Planer w/ extra blades	Sale	435
DW744	10" Portable Table Saw	Sale	499
DW756	NEW 6" Bench Grinder	164	75
DW758	NEW 8" Bench Grinder	184	115

BOSCH

Model	Description	List	Sale
1587VS	Top Handle "CLIC"Jig Saw	292	139
1587AVSC	1587VS Saw Kit with case and *New* Progressor blades	Sale	149
1584VS	Barrel"CLIC"Jig Saw	288	149
	Bosch Metal Case for above Jig Saws		24
	Bosch 30 blade assortment for Jig Saws		29.99

1584VS or 1587VS
with steel case and 30 Bosch blades Sale 175

1295DH	5" Random Orb Palm Sndr	145	89
1274DVS	3"x21" v/spd Belt Sander	301	175
1278VSK	1-1/2"x12" Belt Sander	218	129
1275DVS	3"x24" v/s Belt Sndr	379	214
1276DVS	4"x24" v/s Belt Sndr	408	229
1194VSR	1/2" v/ spd Hammer Drill	272	155
1194VSRK	above Drill w/ case	303	169
1613EVS	2HP v/s Plunge Router	369	199
1615EVS	3 HP v/s Plunge Router	536	305
1634VSK	Recip Saw 10.5 amp	335	185
3315K	12V T-handle Drill Kit	345	159
3615K	14.4V Drill Kit	354	174
3107DVS	5" Random Orbit Sander	165	98
3107DVSK	3107DVS with case	195	115
3725DVS	5" Random Orbit Sander	256	145
3727DVS	6" Random Orbit Sander	266	149
3915	10" Slide Compound Saw	1050	499
3912	NEW 12" Compound Mitre Saw	638	359
11224VSR	7/8" SDS Rotary Drill	404	229
1703AEVS	5" Grinder - 8.5 amp	245	139

Introducing the NEW Bosch Routers

1617	1-3/4 HP Router - 2 handle	Sale	169
1617EVS	2 HP Router w/ variable speed - 2 handle	Sale	189
1618	1-3/4 HP Router - "D" handle	Sale	179

JDS AIRTECH AIR CLEANERS

Model	Description	List	Sale
750	12"x24"x28" 1/4 hp 200 CFM - 750 CFM		Sale 249
8-12	20"x24"x44" 1/3 hp 800 & 1200 CFM		Sale 479

RYOBI SPECIALS

RE600	3 HP Plunge Router v/spd	500	235
BE321	3" x 21" v/spd Belt Sander	310	139

Above sander comes with sanding frame

WDS1600	16" x 32" Drum Sander	980	569

Above sander comes with stand

JM80K	Plate Jointer with case	218	99

JET TOOLS

JJ60S	6" Jointer - open stand	Sale	429
JJ6CSX	6" Anniversary Jointer - closed stand w/ extra knives	Sale	499
JJ8CS	8" Jointer - closed stand	Sale	1189
JWP124P	12" Benchtop Planer	Sale	299
JWBS14OS	14" Band Saw 3/4 HP - open stand	Sale	499
JWBS14CSW	14" Anniversary Band Saw - 1 HP - closed stand, rip fence and mitre gauge	Sale	569
JWTS10JF	10" Contractor Table Saw with 30" Jet fence 1-1/2 HP	Sale	549
JWTS10CWPF	10" Contractor Table Saw with 30" Exacta fence 1-1/2 HP	Sale	749
JTAS10X50W1	10" Anniversary Tilting Arbor 3 HP Table Saw with 50" Exacta fence, table, & legs	Sale	1399
JDP17MFW	16-1/2" Anniversary Drill Press 3/4 HP - 16 speed with mortise attachment & bit set	Sale	439
DC-650	Dust Collector, 1 HP, 650 CFM	319	219
JWP-15HO	15" Planer with stand	1699	1229

PORTER CABLE

9444	Profile Sander Kit	220	99
9444VS	Var/spd Profile Sander Kit	207	119
690	1-1/2 HP Router 8 amp	278	149
6931	Plunge Router Base	139	82
693PK	690 and 6931 plus case	Sale	199
9690	690 Router with case	Sale	159
691	1-1/2 HP Router D-handle	303	164
693	1-1/2 HP Plunge Router Base	338	184
697	1-1/2 HP Router/Shaper	416	235
698	Heavy Duty Shaper Table	238	135
352VS	3x21 v/s Belt Sander w/bag	321	175
9352VS	Above sander with case	Sale	189
360	3"x24" Belt Sander w/ bag	397	214
360VS	360 Sander w/ variable speed	429	229
362	4"x24" Belt Sander w/ bag	412	225
362VS	362 Sander w/ variable speed	446	239
9125	3-1/4" Planer Kit w/ case	250	145
505	1/2 sheet Pad Sander	249	139
330	Speed Block Sander 1/4 sheet	120	68
556	Biscuit joiner w/5556 fence	Sale	135
557	Plate Jointer with tilt fence. Includes 2" & 4" blades for use with standard & face frame plates	400	199
5563	Face frame plates for 557		7.99
7519	3-1/4 HP Router 2 Handle	469	258
7518	3-1/4 HP 5 speed Router	534	289
7539	3-1/4HP v/spd Plunge Router	534	289
7310	5.6 amp Laminate Trimmer	176	104
97310	Laminate Trimmer Kit comp	336	194
7335	5" Random Orbit Sander	254	139
97355	7335 w/ case & dust pick-up	274	149
7336	6" Random Orbit Sander	259	145
97366	7336 w/ case & dust pick-up	284	159
332	Palm Grip Rndm Orb Sander	133	59
333	above sander with dust bag	148	65
333VS	NEW Random Orbit Sander - variable speed	150	85
334	333 Sander with PSA pad	148	65
335	Palmgrip Random Orbit Sander with dual flip pad	Sale	85
310	Production Lam. Trimmer	270	154
347K	7-1/4" "Framers" Circ Saw with plastic case	250	129
743K	7-1/4" "Framers" Circ Saw with case - left hand version	250	129
9737	Tiger Recipro Saw	307	159
9543VS	NEW Top Handle Jig Saw	300	169

New Porter Cable Cordless Nailers !

CDA250	Angle Finish Nailer 1-1/4" to 2-1/2"	500	279
CFN250	Finish Nailer 1" to 2-1/2"	500	279
CMS200	Medium Crown Stapler 1" to 2"	500	279

Porter Cable Pneumatic Nailers

BN125	Brad Nailer -18 ga. 5/8"- 1-1/4"	144	89
BN200	Brad Nailer -18 ga. 3/4"-2"	238	125
FN250A	Finish Nailer -16 ga. 1"-2-1/2"	362	185
DA250A	Nailer -15 ga. 1-1/4"-1-1/2"	412	215
FC350	Framing Nailer - clipped head	558	289
FR350	Framing Nailer - round head	558	289
RN175	Roofing Coil Nailer	504	289

CFBN125 BN125 nailer, CF1400 compressor and 25' air hose
Sale 269.00

Porter Cable Compressors

CF1400	1 HP, 4 gal. Pancake	Sale	195
CF1540	1-1/2 HP, 4 gallon Side Stack	Sale	299
CF2400	2 HP, 4 gal. Side Stack	Sale	325

Porter Cable Cordless Drills

9862	12V Drill Kit w/ 2 batteries	382	159
9862F	9862 Drill Kit with flashlight	Sale	169
9872	14.4V Drill Kit w/ 2 batteries	424	185

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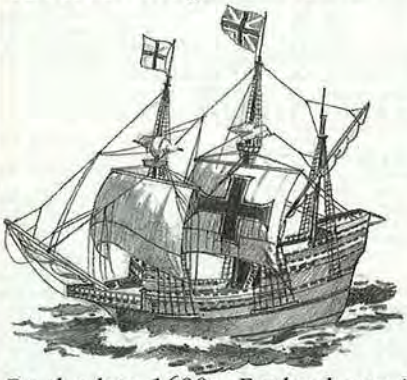
Whatever happened to the *Mayflower?*



By the late 1600s, England was in such desperate need of large timbers for construction that people turned to recycling. Historians have discovered that even the ship *Mayflower,* which carried the first Pilgrims to the New World, became the beams and rafters of a barn in Jordans, a small village outside of London.

A common bond

To some, the internet can be a jungle. But every once in a while, really good things happen.

Last April, Hugh Hadfield of Fairview Heights, Illinois, a contributor to the discussion group at WOOD ONLINE® (www.woodmagazine.com) read some sad news. Liz Peterson, wife of Perry, Iowa, woodworker and fellow internet participant, Robert, was diagnosed with malignent brain tumors. Hugh had never met Robert, except through numerous postings on WOOD ONLINE, but his heart went out to the couple. What could be done to help them through the months ahead?

Hugh and 15 cyberspace volunteers—all online contributors—decided on a hand-crafted gift as a show of concern and best wishes. Another 10 contributed toward expenses. The gift, a set of hand-crafted wooden "books" containing messages, a bookcase for Robert, and a server/tray for Liz, see *above*, was delivered in June. The Peterson's were overwhelmed and buoyed by these strangers' support, whose only bond was wood.

The Petersons show off their gifts from internet friends. The "books" are made from several wood species.

Folk marquetry on exhibit

Until January 10 you can view a first-time exhibit of American folk marquetry at New York City's Museum of American Folk Art. The intriguing show is called "Masterpieces in Wood: American Folk Marquetry from the Hirschorn Foundation."

Marquetry was long practiced in Europe, then brought to the Colonies, and traditionally was the work of artisans inlaying veneers of different wood species in patterns on classical cabinets and other fine furniture. Although folk marquetry follows many of the same techniques, it's mostly the work of ordinary people on everyday items. Makers of these items have been identified as sailors, farmers, and even prisoners.

These skilled craftsmen used marquetry to embellish, beautify, and transform the ordinary into the extraordinary. Working in their spare time after their normal jobs were over, they created pieces so exquisite and time-consuming that no one could afford to pay for them. So most items in the exhibit were gifts to loved ones, expressing an investment of time and emotion.

You'll find the Museum of American Folk Art at Two Lincoln Square. For more informartion and exhibit hours, call the museum at 212/595-9533 (www.folkartmuse.org).

Although the maker is unknown, this circa 1930 violin case exemplifies the meticulous, handcrafted detail found in folk marquetry.

New from *WOOD®*

Watch for *Holiday Decorations & Gifts*™ on your newsstand. Inside, you'll find great projects from *WOOD®* magazine, including dozens of ornaments to scrollsaw and decorating ideas. If you can't find the magazine locally, you can purchase a copy by calling (800)572-9350.

Photographs: Courtesy of Museum of American Folk Art; Marty Baldwin; Hetherington Photography
Illustration: Jim Stevenson

Print this article

THE FAMOUS KLINGSPOR

Bargain Box

So you've got your project just two steps from completion - sanding and finishing. You're so excited and you head for your supply cabinet - but what do you find? You're out of sandpaper!! Now the project has to be put off for another couple of days while you round up the proper sanding product.

This would not have happened if you had the famous Klingspor's Sanding Catalogue Bargain Box. This is now known as the very best deal in the woodworking business. It's 20 pounds of the world's best sandpaper packed into a box and sent right to your doorstep. The perfect combination of coarse, medium and fine industrial sandpaper is the basis for the Bargain Box.

Use the generously sized pieces to hand sand or make discs and other special sanding devices. This "leftover" (not seconds or inferior in any way) material from the world renowned Klingspor Abrasives is the best money can buy. And speaking of money, you're not paying much for this great deal - only $29.95

Don't let yourself run out of sanding supplies. Try the virtually endless box of materials from Klingspor's Sanding Catalogue - the famous 20lb. Bargain Box!

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#BB00010 ..... $19.95

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A truck has a job to do. And our truck did the job about as well as could be done. But we knew we could build a better truck.[1] And we did. Its name is Silverado.

Silverado isn't just any new truck. It's The Truck. The new full-size pickup from Chevrolet. Silverado is the only new full-size pickup built on the tradition of the best long-term quality.[2] The only new full-size pickup built on the tradition of the highest resale value.[3]

We took the most dependable, longest-lasting full-size pickup on the road[4] and made it bigger, faster,[5] stronger and smarter. Silverado has a bigger extended cab exterior than Dodge Ram or Ford F-150. A more powerful V8 than any other pickup.[6] A hydroformed steel frame that's the strongest it's ever been. And a Driver Message Center designed to continuously monitor up to 15 key truck functions.

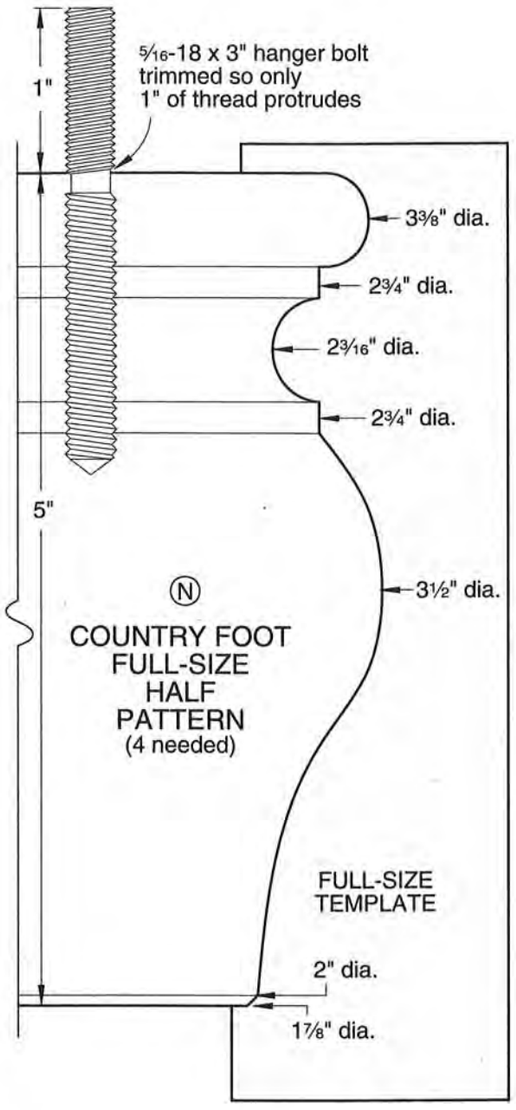
Only one company could bring you a truck like this. The company that's been bringing you dependable, durable trucks for over 80 years. And that's why Silverado isn't just any new truck. It's The Truck. From Chevy.™ The most dependable, longest-lasting trucks on the road.[7]

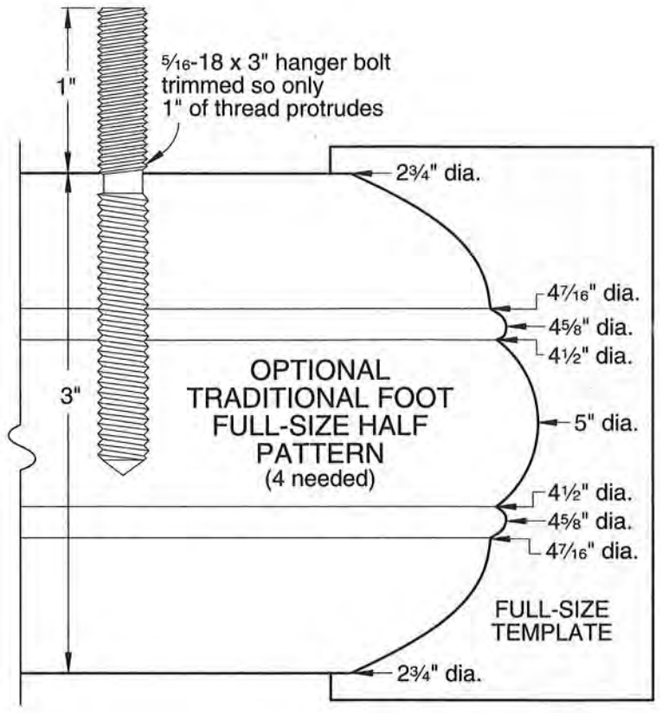
SILVERADO

LIKE A ROCK

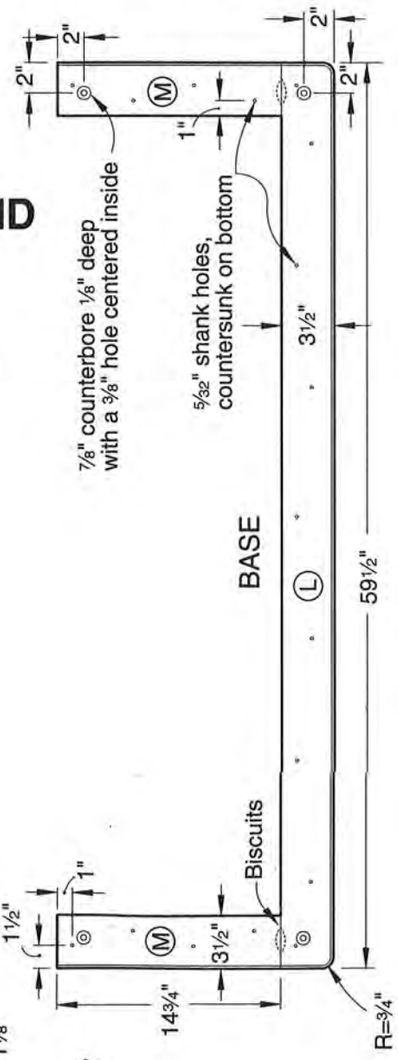
Toll free **1-877-THE TRUCK** or **www.chevrolet.com/silverado**

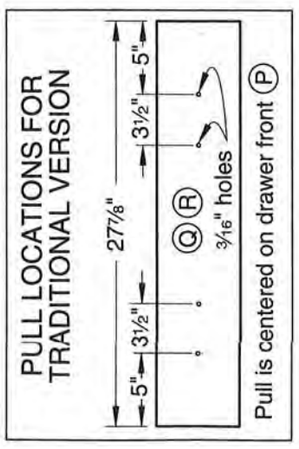
All claims exclude other GM products. [1]The 1999 Chevy Silverado is manufactured by the North American Truck Platform of General Motors Corporation. [2]Chevy C/K claim based on a GM product quality and workmanship owner satisfaction survey of 1992-1996 full-line, full-size pickup manufacturers. [3]Chevy C/K claim based on overall average MSRP vs. trade-in values of 1990-1996 models. Source: National Auto Research Black Book Official Used Car Market Guide. [4]Dependability based on longevity: 1981-1997 full-size, light-duty pickup registrations, including Chassis Cabs. [5]Silverado products are generally faster than models they replace. However, certain combinations will yield different results. [6]Based on horsepower of available V8 engine. [7]Dependability based on longevity: 1981-1997 full-line light-duty truck company registrations. Excludes other GM divisions. © 1998 GM Corp. Buckle up, America!

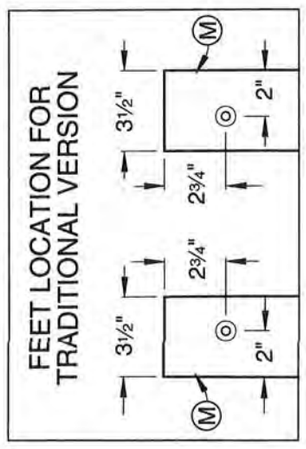


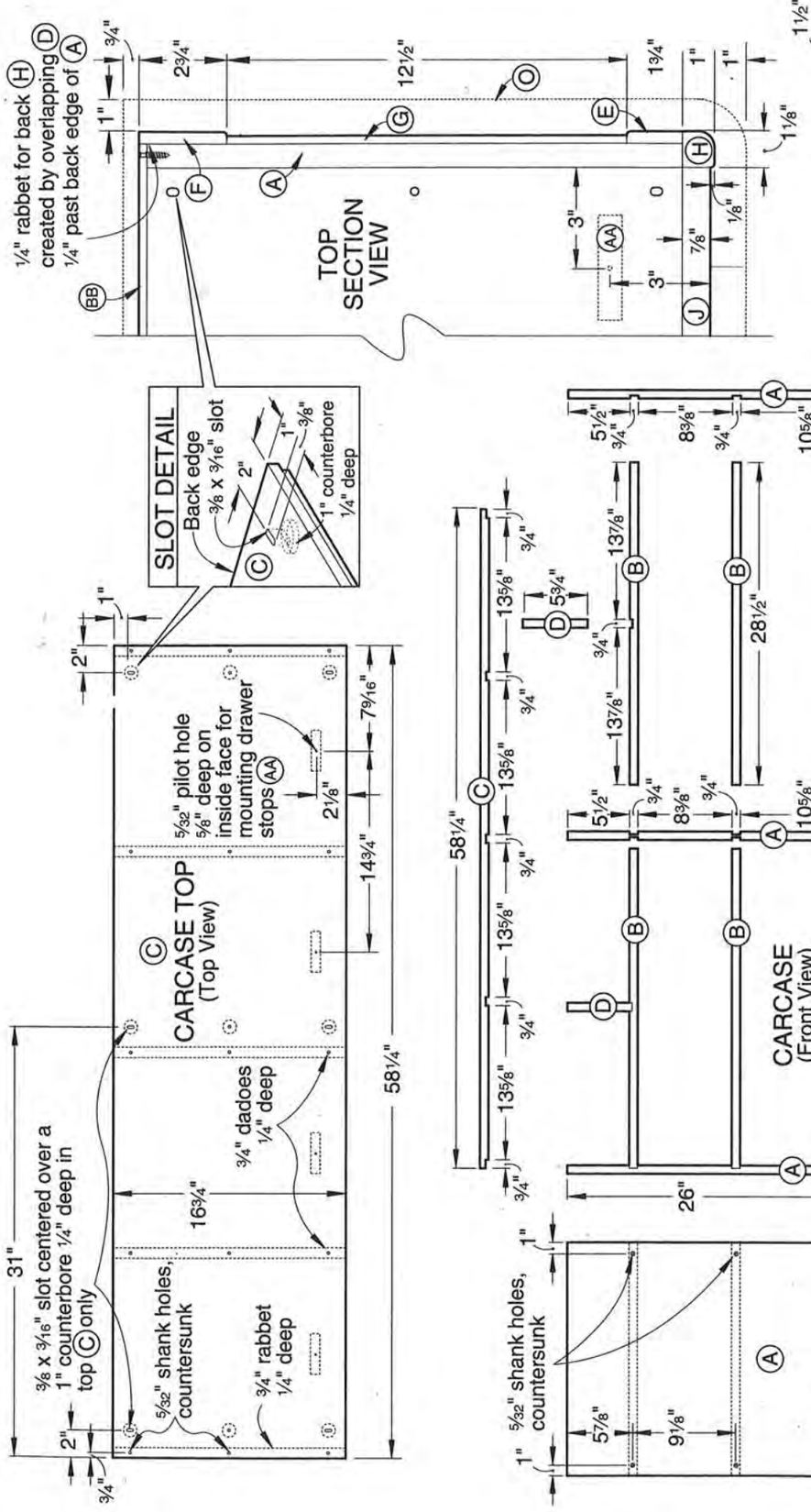


DRESSER PARTS VIEW AND FULL-SIZE PATTERN
See page 62









Better Homes and Gardens®
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For your woodworking convenience

WINTER 1998 **ISSUE 111**

Dear Reader: As a service to you, we've included full-sized patterns on this insert for irregular-shaped and intricate project parts. You can machine all other project parts using the Bill of Materials and the drawings accompanying the project you're building.

Country Dresser
Scrollsawn Clock
Oak-leaf Carving
Picture Frame
Hooks & Hangers

Page 44
Page 50

Page 54

Page 62

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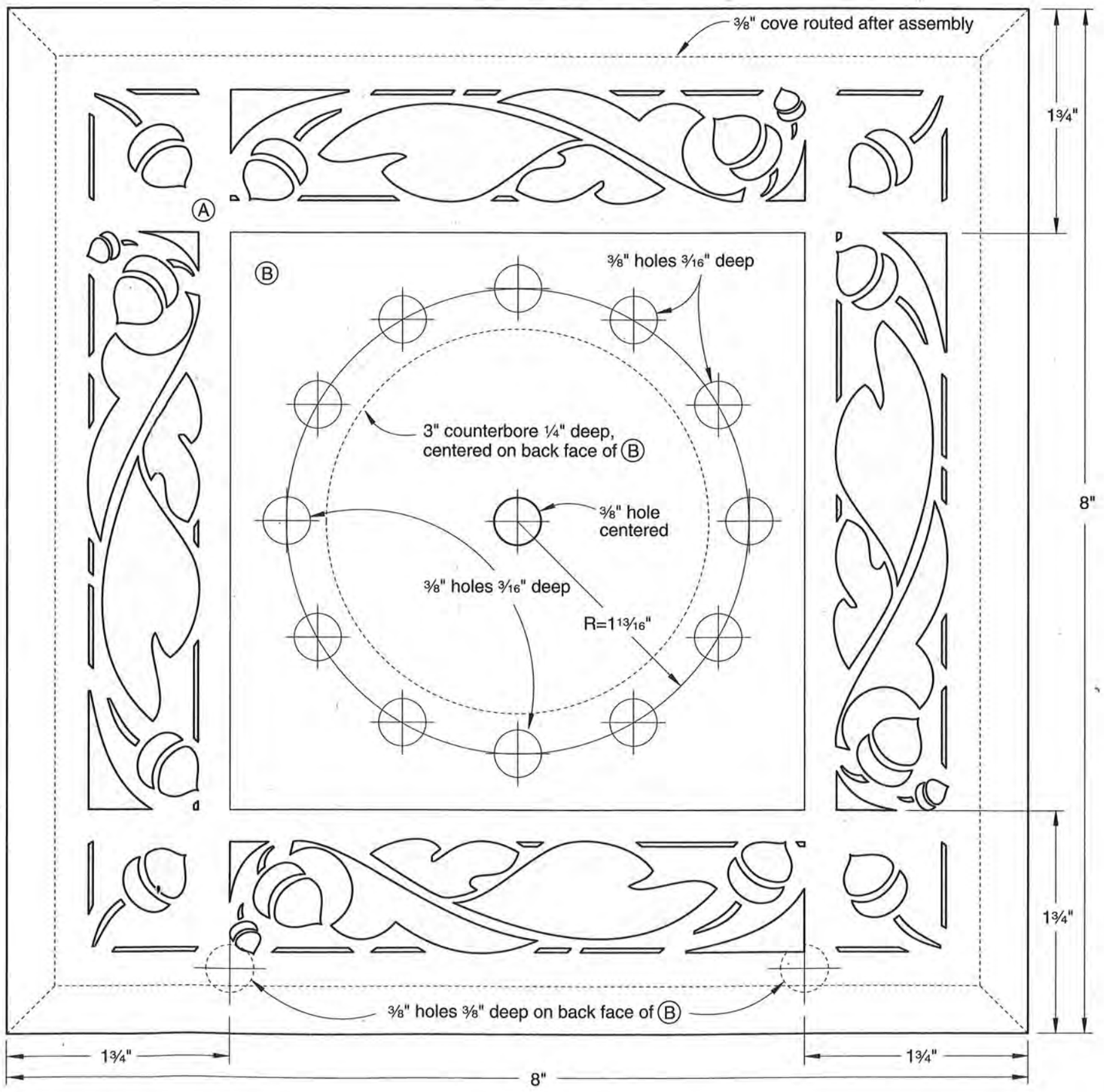
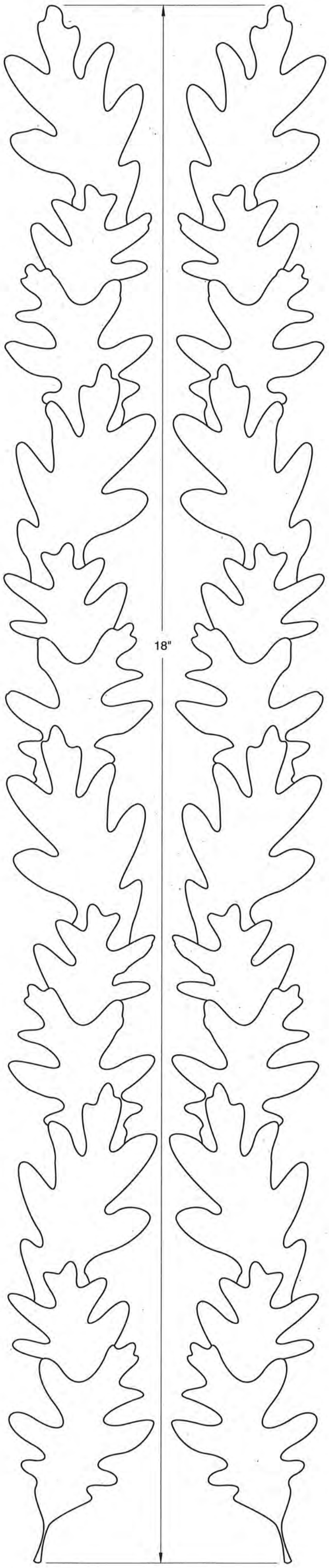
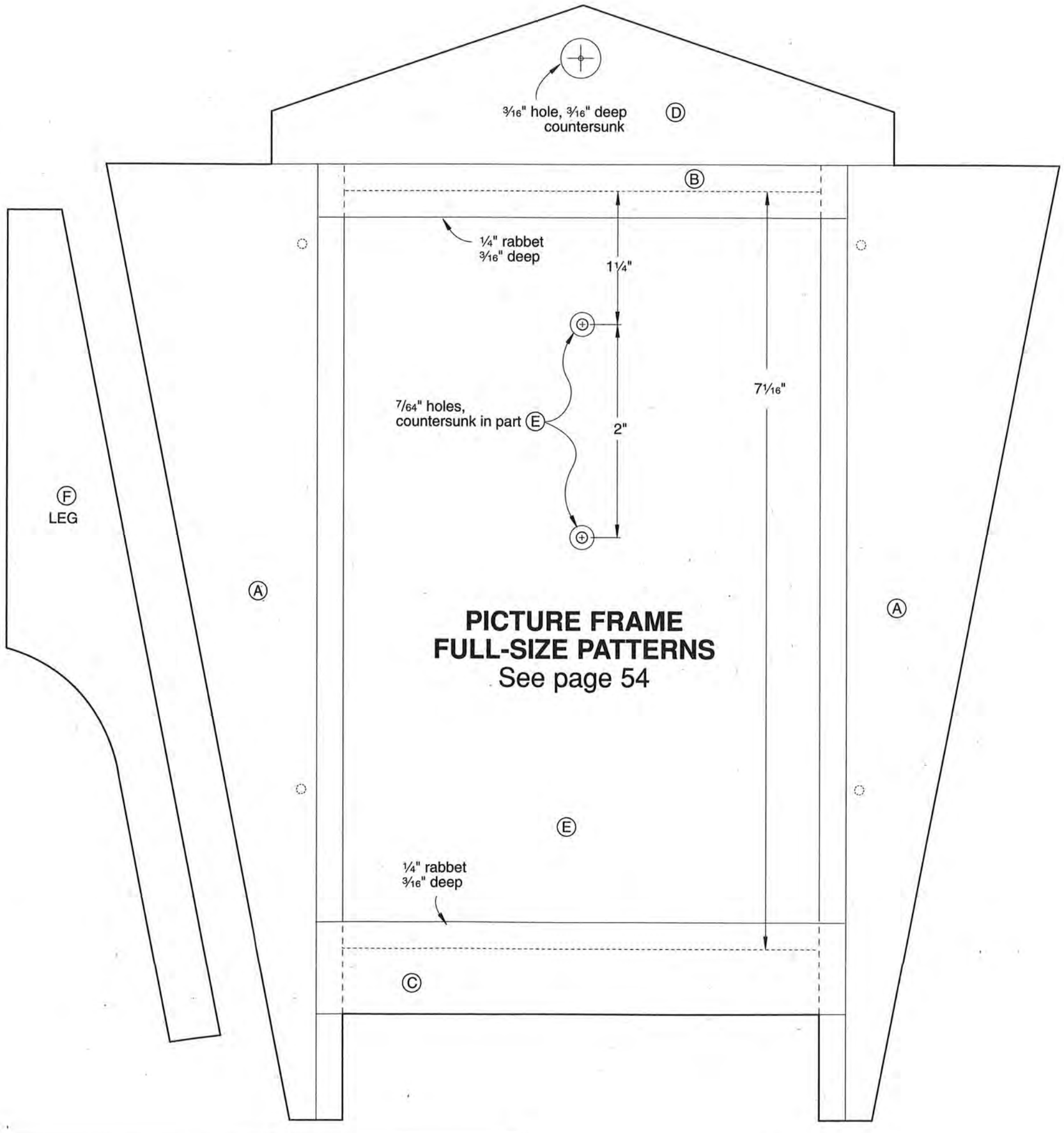
SCROLLSAWN CLOCK FULL-SIZE PATTERN
See page 72



OAK LEAF FULL-SIZE PATTERNS

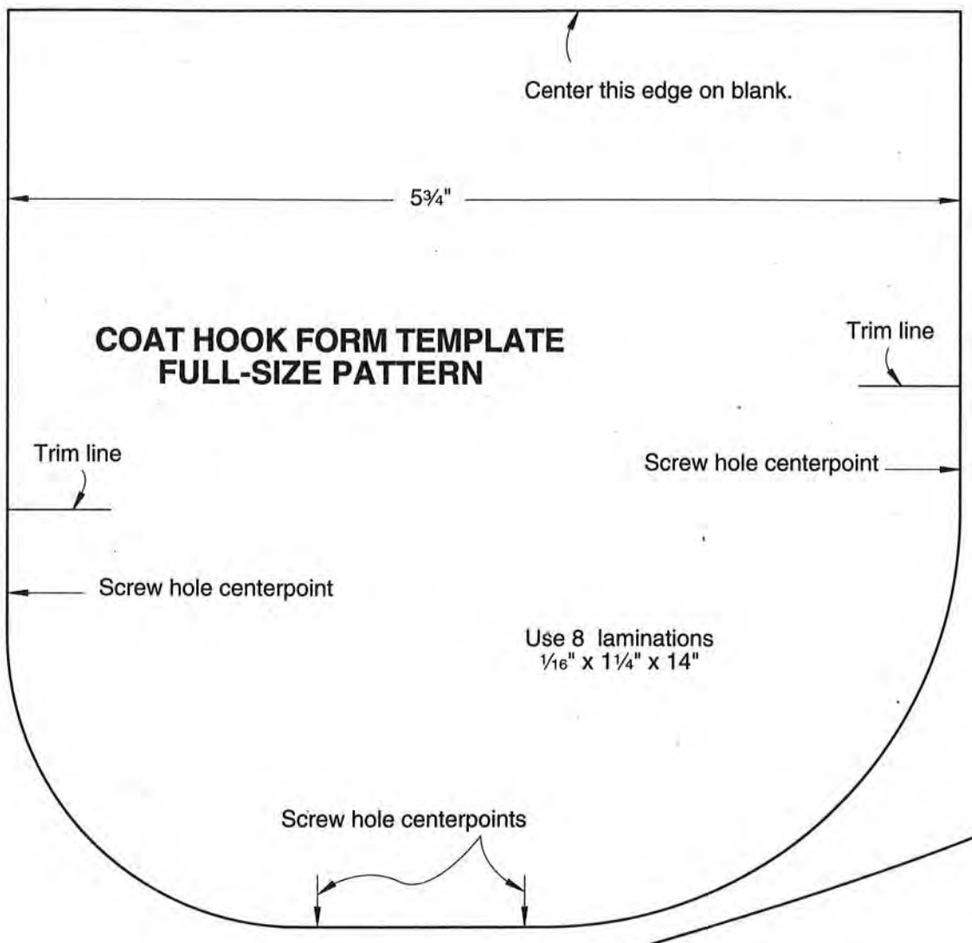
See page 50

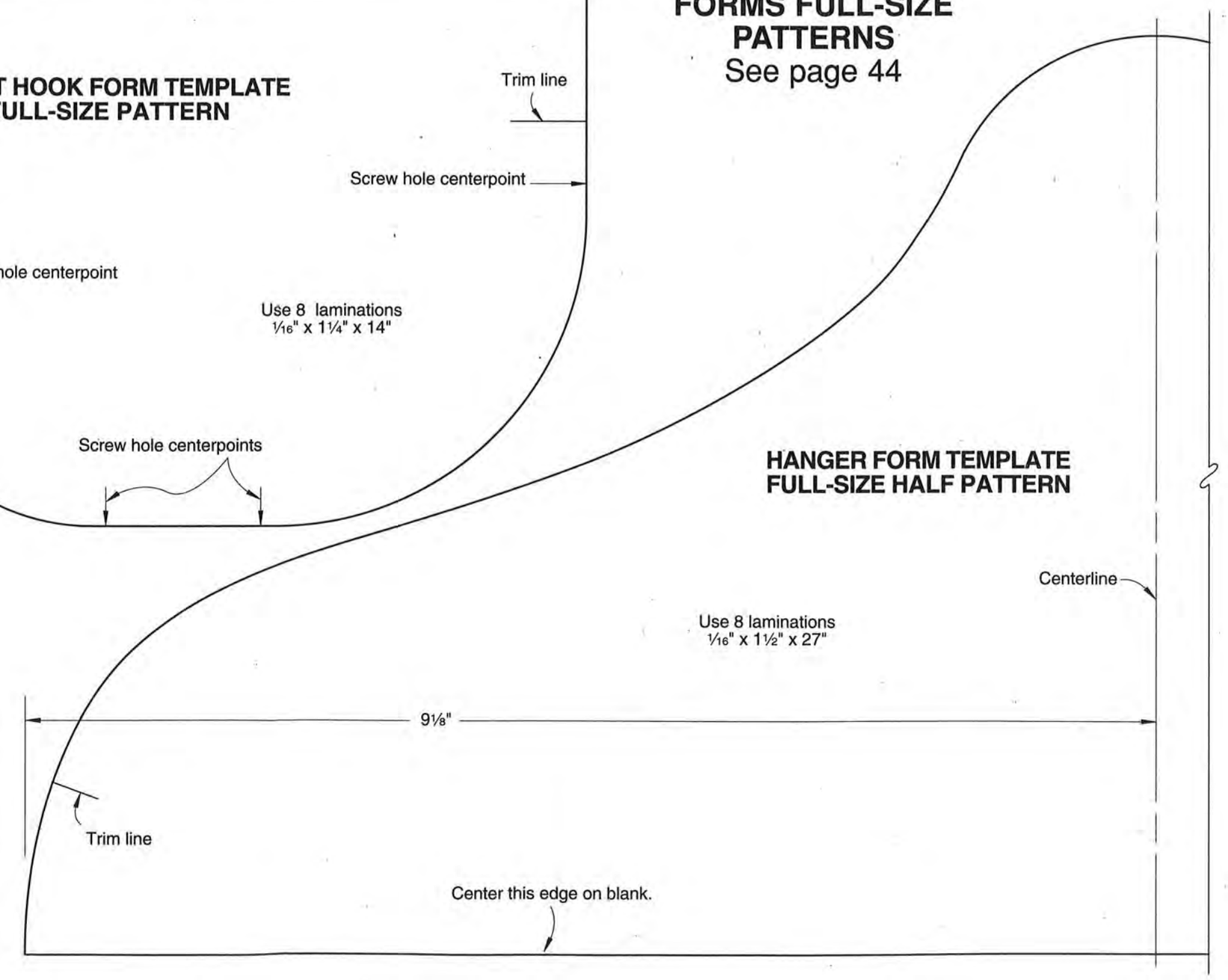




PICTURE FRAME FULL-SIZE PATTERNS

See page 54



HOOK AND HANGER FORMS FULL-SIZE PATTERNS

See page 44